

## FAST AND FURIOUS



SLAPSHOT from Anirog is a two player, fast action, ice hockey program. Also in this thrilling game there is included a smoothly running speech synthesis system of the very highest quality. Before the actual game starts each player must select an international hockey team to represent. After doing this you must quickly and skilfully manoeuvre your man across the glistening ice whilst your other team-mates move automatically around the rink waiting for you to pass the puck to them. If you do manage to race past the opposing defence then you have a chance to shoot for goal and score. However, you still have the goalie to beat who is able to dive in all directions. Also included in this amazingly quick and totally original game is the ability to actually physically bodycheck your opponenta. Never the less, do not be too aggreasive otherwise you could incur a "roughing penalty", resulting in a faceoff in your own end. giving the opposing side an easy chance of scoring. Also other extra features available include: Pause mode, and three levels of play ranging from fast to slow as well as a re-start option. Slapshot from Anirog is a totally original two player game with lightning fast action never seen betore on the Commodore 64. Two J.S. Commodore 64 Cassette £8.95 Disk £10.95


Trade Enquiries: ANIROG SOFTWARE LTD. UNIT 10 VICTORLA IND PARK VICTORIA ROAD DARTFORD KENT $\mid 0322192513 / B$
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## NEWS

## Commodore joins price war

Commodore roiled up it's sleeves to join in the price war last week, with the announcement of a massive 50 per cent reduction in the price of the Plus/4.
The Plus/4, Commodore's newest model, has been slashed from £299,99. The machine is a competitor of the QL and the BBC, but weighing in at £149.99, it's now a much more atractive prospect.
The Plus/4 has 64 K memory, of which 60 K is usable. Howard Stanworth, Commodore UK general manager, said: 'Al £150 we're offering the public a really powerial and versatile computer at a price which until now has only applied to machines designed for first-time buyers.'
We think at this price the Plus/4 is head and shoulders above it's rivals.'

Commodore has no plans to cut the prices of the C16 or C64, according to a company spokesпा표
Commotore's move follows Acorn's announcement of a $£ 70$ price cut for the Electron, and Sinclair's repricing of the Spectrum Plus at $£ 129$ - a $£ 50$ reduction. The Plus/4 now offers good value for money at just £21 more than both these 'beginner's' machines.
And the price cus was one more move in a week full of drama and crisis, headed by the suspension of trading on Acorn shares. The price war reflects the tusbulence in the compuier industry: pre-Christmas sales were disappointing for a number of machines, and new pricing strategies are aimed to shift stock and sharpen up the competition.

Commodore UK. 1 Hunters Way, Weldon, Corby, Northanis NNIT JQX

PSS ia about to release it's first titles for the Amstrad: Frank ' N ' Stein and Battle for Midway.

Frank ' $N$ ' Stein is a 50 level platform game in which players must collect parts of Frank's body. Battle for Midway is a computer version of the World War II Battle in the Pacific.

Frank 'N' Stein will be handied by Amsoft and will cost 88.95 , and Battle for Midway will be dealt with by PSS at a price of $£ 9.95$.

PSS, 452 Stoney Stanton $R d$, Coventry CV6 SDG


## Chess champion

Ten-year-old David Essex from Lincolnshire has won the Make your Move chess championship.

This was the first ever contest in which the players didn't leave their schoots to play the matches. All games were played on BBC machines linked to Cecfax, the BBC's Teletext service.

This had the added advantage that anyone with suitable television could watch the games as they were being played.
The result wasn't 100 much of a surprise however. David
was the number one seed; he's already the British under nine champion after just 18 months playing experience.
Scrablesty primary school, which David attends, is the big winner. The school received a BBC computer system includiag a teletext adaphor. Runner-up was Cathy Haslinger from Hayes and her school have a new computer too.

Over 6,000 primary schools throughout the country took part in the championship. which may now become an annual event because of jis popularity.

Acom, Fwhourn Rd, Chern Hinson, Cambridge

## Staff cuxed

Five Ways Software, a software house which deals exclusively in educational titles, has sacked eight of its staff, mostly programmers.
Five Ways was set up by MEP, the Microelectronic Education Programme, but later went independent. The MEP project is due to end this year and Tony Clements, Managing Director of Five

Ways, said: 'There are several reasons why we have had to take these measures. The MEP project is ending and Longmans is pulling out of the software markel.' Five Ways has produced several programs on commission for Longmans.

Mr Clements also said that the general trends it the software market were not favourable to educational programs at present.

Elizabeth Collins of Websters Distribution commented on the
sales of educational titles, saying: 'An educational best seller is only equivatent to a game at around number 50 in the charts.' She observed that an average title would have no chance of success. "To get anywhere at all an educational titte must be very good indeed.' However, she believes that the educational side of the market is 'definitely steady',

Mr Clements was adamant that Five Ways is only suffering a temporary setback. He said: 'Five Ways is definitely not going down.'

Five Ways, Imperial House, Bourville Lane, Selly Oak, Birmingham

## Coming soon...

Dragontorc of Avalon is to be the next adventure movie from Hewson Consultants.
Based around the same style and format as Hewson's bestselling Avalon, there are some additional features.

All the characters have a personality of their own and the whole race has an attitude to you. For example, if you kill one member of a race the whole group will rapily become your enemies.

Each mernber of the race also has an individual response to you, Some are more plessant than others. In all, it's a game in which you choose your role before you start to play.

Whether you're Mr Nice Guy or Nasty Norah, you won't be able to find the game on the shelves until March 28th. Perhaps you should start practising now.

Hewson, Hewson Hse, $56 b$ Milton Trading Est, Milhon, Abingdon, Oxon OXI4 $4 R X$

## First to crack Ket

Tom Frost of Montrose has carried away the prize for the first adventurer to complete the entire Ket trilogy.

This involved playing three different games and solving hundreds of puzzzies. He started the first of the games a year ago ats soon ms it was released. After the release of the last part it took him three months to get past the rive guardians.
Rex Taylor of Milton Keynes also cracked the game, but his

## NEWS

answer arrived whilst Tom's was being checked.

Incentive often give a prize to the first player to finish it's puzzles and games. The Intest cassette is a licenced version of the Moon Cresta arcade game: the winner of this competition will be given the actual arcade machine.

Incentive appears to be slightly confused over the prize which will be offered with it's new game Confuzion. A spokesman said: 'We haven't thought of anything for that one yet.'
BBC, Commodore 64 and Dragon users can look forward 10 a year of mystery. Inceative will soon be releasing versions of Ket for their machines.

Incentive, 54 London St , Reading RGI 4SQ

## Free upgrade

Oric's latest udd-on will be supplied free to all Oric-I and Atmos owners on request.

This 'enginecring improvement' is a protective cover for the expansion bus connector al the back of these machines. H's major purpose is the prevention of power shorting due to careless insertion of the power lead, but it will also protect the interface from cofiee, dust and other foreign bodies.

Any owner who would like to have one of the new protectors shoutd send a stamped addressed envelope to:

Tonsoff. Techno Park, Newmarket Road, Cambridge

## Hey, good looking

Gond looks and 'optimised circuitry' are the star features of Binatone's new data recorder.

The machine has \& stand-up cassette slot which Binatone claims 'makes old shoeboxshaped' recorders look ous of place next to today's computers'.
Two models will be available: for machines accepting a standard cassette input lead, such as the Spectrum, BBC, Electron and MSX at £29.95. and a dedicated version for the Commodore VIC- 20 and 64 models at $£ 34.95$.
One feature is a monitor for audio verification of tapes, cue and review for fast winding to particular programs and a tipe counter. The aim is to take the guesswork out of buying a cassette recorder, as each model


Tom Frost (righ), first to crack the Kel trilogy


Now you see li... Bow you don't

should give a perfect match to your computer.

Binatone, Binarone House, 1 Beresford Avenue, Wembley, Middx

## Superior prizes

There were eight titles in our Superior Soltware wordsquare and 25 winners will each receive four Superior games. The winners are: Steve Bennett, BFPO 41: Adrian Hall, Cowers: Riehard Poaton, Southwater: Geurge Carrick. Wallsend: Joseph Toomey, London: Karen Haggerty, 8tyh; M Newton, Newqulay; W Fislay, Jvybridge, David Reynard, Bradford; 1 D Howe, Romford; M Brazell, Rye: if J Williams, Rusuden: Rakesh Patel, Crawley: Gachel Maole, S Croydon, K Chua, tirminghantr; J Gay, Aylesbury; Pasl Worren, Doncaster: Fanel Gibson, Rossington; Gary Taylor, BFPO 39: [3atren Nisbett. Lecicester, Claris Whitehend, Manclester; Chris Gibson, Nattinghasm: Andrew Clarke. Atherstone; P M Green, Famborough, Sean Harrison, Rotherham.

## Shuttle winners

There were six Activision titles in our Space Shutle competition. Fifty winners will each receive a copy of Space Shutle.

The winners are: Andrew Bell, Southumpton; Richard Brown, Nottingham: Paul Torpey, London; Gary Everell, Middx; D Satiderson, Tyne \& Wear: Richard Few, London; Colin Kidd, Peincuik: C Dotan. Middk: D Roctosek, I yminglon; C Huggett, Gi Yarmouth: Mark Coopet, Winsford: Marthew Hoyward, Setsey; Andrew Diddle, Richmond; S Hili, Hempstead; R Barlow, Scuntborpe: C Price. Surbiton; R J Henthorn, Newport; Andrew Kempson, Lutam: lan Camphell, Glaspow: Ewen Camphell, Dingwall: A Donovan, Plymouth: David Portes, Rocblord: Andrew Morrison, Alloa; M O Hook, Punypool: SM Dunne, Upminster Bridge; Robert Stokes. Maidsione: Alexander Grant MeNabb, Bromity; Robin England. Thelford; G M Corbett. Dingwall; C Crane, Trestlsam: F H Reed, Hoddesdon: B D Everingham, Romford: Sieshien Allen, Enfield: Paul French. Edmonion: Timothy Salter, Ivybridge; P M Whiliams, Barry: Sean Conway, Kilkenny, Jonathan Bell, Sasistury: Harvey Whiteman, Loughborough; Carto Somers, London; Nicola Gilmour, Paisley; Gordon Ross, Dundee: Atholl Grant, Stonelhaven: Christopher Bosk, Walsail; Paul Martill, Washington: John Howe. Romford: Neil Rose. London: G R Helton. Benfeet.

## COMPETITION



Ever wanted to be rich beyond your wildest dreams, or wander the world in search of jewels? Well, we can't do anything about the riches and the world, but we can send you on a search for real jewels.
The week one lucky reader will win $£ 200$-worth of jewellery. The prize will be a voucher which can be exchanged at any branch of H. Samuel. This means you can choose your own prize, to a value of $£ 200$, from H. Samuel's range of gemencrusted merchandise.

There will also be 25 runners up who will each receive one of Interceptor's range of computer games. Owners of Spectrum and Arastrad machines will win a copy of Jewels of Babylon, priced at $£ 5.50$ and $£ 6$ respectively. C64 and VIC-20 owners will win an aliernative tille from Interceptor.

Interceptor's Jewels of Babylon for the Amstrad CPC464 and Spectrum computers, is fascinating. adventurous romp through the Indian Ocean in search of Queen Victoria's lost jewel

The jewel collection concerned was created 3,000 years ago by a skilled Babylonian craffsnian. It was brought to Britain and then semt as a present to ant Indian pricesss on the occasion of her wedding. During the journey from Africs to India the ship was attacked by pirates and you are the sole survivor from the crew.

Taking a vow to recover the lost gems, you set off by ship to the island which the pirates use its their base. This is where the game staris. You have to find your way past a whole host of nasty creatures and devious puzzles before you can meet the sleeping pirate.

You will encounter lions, lish, spears, fruit - poisoned, of course, - a talking parrot, crowbars and the pirates themselves. What's more, you must find a different way back once you have the treasure in your hands.
Our competition is at least a


> There's a E200 jewellery voucher to be won this week - plus games galore - in our

## NTERCEPTOR


expanding range. This offer is available to everyone entering, but, if you don't wish to accept, please indicate on the eniry coupon.

## How to enter

Look at the jewel symbol an this nage II's very dintinctive and there are others exactly the same scattered tlsoughoust this week's HCW.
Go earefully through the makazine and count all the jewel symbols you can IEnd. When you are sure you have found them all. fill in the number on the eniry coupan.
Complece the coupon clearly and fully - if you are a winner it will be wed as a label. Send the coupon to Imporimnt: write the number of jewel symbols you find on the hack of your envelope.
Send your ebtry tot Iatercepar Software Competilion. Home Computing Weekly, No. I Golder Square, London WIR 3AB, Closing date is first pesi on Friday हु Narch, 1985.

You may enter the many fimes us you wish, bull each enify mult be on an officin toupon - not a eopy and seated ibe separaice envelope.
Prizes will artive from ther. ceplor Sollware within 28 dayt of the putalication of the tesulis of the ciospectition

## The rules

Entrie will nar be acceped from euploy yees of Aftuls Spectutist Publica:


 aysnts or bie companies.
The How 10 Etier ketrion formis Par) of tile sulies.
little easier. All you have to do is read this week's HCW carefully. As you do so you will see a number of jewel symbols like the one on this page. To win this week's prize you must count the number of jewels, including the one on this page, and enter this number on the coupon.
All entramts are eljgible to join the Interceptor Software club al no charge. You will then be sent a free poster and a regular newstetter containing comperitions, discount affers and full news of Interceptor's


## Interceptor Software Competition

## Entry Coupon

Name
Address
post code

## Number of jewels found

Type of computer (Spectrum/Amstrad/C64/VIC-20))
1 do/do not wish to jois the Interceptor Software Club
(delete as applicable).

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## SPECIAL REPORT

## Genevieve King reports on behind the scene action at Channel 4's newest computer programme

Channel 4's new computer series is now well under way, Entitled 4 Compuler Buffs, it is described by Channel 4 as a programme for the 'serious computer user.' Home Computing Weekly was invited to sit in on the rehearsals for the first programme.
The series is being produced by the team responsible for Thames Television's Database and viewers will already have recognised many familiar faces. Presented by Magpie veteran Tony Bastable, the reheursals took on a very professional feel, although there were some hiccups.
Tony is assisted by Jane Ashton and Dr Mike Thornes, while computer journalisi Guy Kewrey deals with the news, views and comment section. There is also a regular modem item presented by Ben Knox.

Channel 4 describes 4 Computer Buffs ats à series which is 'tallored for the serious home computer user? At the rehenrsal Tony Bastable was heard to remark jokingly: "This is Database with absolutely incomprehensible content:"

Hopefully, home computer users won't have cause to agree with this!

According to Channel 4, the programme is aiming to report on the latest in new technology and features many practical demonstrations of how home computer users can utilise the full potential of their micros.

During the series there will be a number of television innovations. These include the first ever transmission of software, the first interactive bulletin board and the first TV comparative bench test for hardware. The series will also launch Prestel's new school service, Schoollink,

The light transmission of software was featured in the lirst programme of the series, Viewers were shown how to assemble a light pen which can read data off a flashing tight at the corner of the screen. The process, described as telesoftware via light pen, was certainly a first, and Channel 4 seems very conscious of the pioncering nature of the series.

The interactive bulletin board

## The making of 4 Computer Buffs


will the most lasting aspect of the series, since it is to continue after the seven half-hour programmes come to an end in a few weeks' time. It is an addition to the telectronic direct mailbox to the production office, which has already proved popular with followers of the Database series. It is being organised through the Nottingham Building Society's mainframe computer and can be contacted on Prestel 7776.
The bulletin board will provide news, not only about the programmes, but also concerning general subjects of interest to the computer user. It will also enable users to contact each other with information
abou! ideas and activities. Channel 4 is also hoping that the bullet in board will provide a forum for debate on subjects which are imporiant to those isvolved in the computer industry.

The comparative beach lest which has been devised for television by David Tebbut is another revolutionary item. Spotlighting BBC, Amsirad CPC464 and QL computers at first, each machine is dealt with in seven minules of viewing time, alihough many hours of research are said to have gone into the feature.

The programme will also preview an importani development in the world of so-
called telesoftware. 4-Tel is Chansel 4's equivalent of Oracle, the $1 T V$ 1eletext service. In a few weeks' time the new 4 Tel service will begin transmitting sofiware which can be downloaded by users. Users will need a new decoder, developed by OE Limited. It is called the 4-Data adaptos and at first will be available for the 48 K Spectram only, although versions for other popular micros will follow soon.
The adaplor is endorsed by Channel 4 and allows users to receive not only teletext information from 4-Tel, Oracle and Cecfax, but also the free software that is to be broadcast by the 4 - Tel service. According 10 OE Limited, it has been designed to fit neatly under the Spectrum and includes special features which enable you to slore seletext information on microdrives and print the data using a Spectrum comparible printer.

Transmission of telesoftware will be broadcast on Channel 4 on Tuesday mornings between 10 and 10.30 and 11 and 11.30 am. This will consist of commercial software which can be downloaded using the OEL adaptor, and the programs will be accompanied by rolling teletext information.

OFL's telesofiware sdaptor

## 30 Star Strike 48K spectrum

Real Tlime Soflware
Wher I first saw this．I was iess than impressed，but as i played it a fittle more in＇s stanted to grow on the and my fellow players．It is a space baitle game with thret distinct phases．

In the first you are speediny through the Balaxy to take on your लuttmy at hus home buse． Yau have to destray the enemy ships wailst at the same time avoiding their fire．

The second phase has you flying over the planet sorface to destroy enemy buildings．On the thind you approach the sacmy power plant through a duet and avorit catwalks that ate al various tevels araund you．
Finally，there is the power plant to destroy．This tahes great accuracy．The game is fist，the
graphics，based on wire frame animation．are good and interestian and there is some variety between the differenil sireens．having said that，I feel that this isn＇t one of thore games that I would want to play againt thd again．Perhaps I＇ta Junt geting old and jaded with ath this kiling in space．

1．C．
iffaructions
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3D Lunattack c64 E7．95
Hewson Consulants， 96 日 Milion Trading Est，Milion， Abingdon，Oxon OXI44RX

This is a sort of flighs simulator， as you would expect from Hewson，You fly around the morn，Ettacking the Seiddab land and air forces while protecing your own facl base． it＇s wery complicated，and a plance at the instructions would be enough to put off anyone but a real enthuslast，which I trust confess I am nol．

There is a lunar map which show yout pexition and the chermy ${ }^{\text {s．}}$ ．Unforlustately，if＇s difficull to tetl which is which． Your crast can operate in three different mudes，detetmised by the shape of your gunsight－

## Moon Cresto a8N Spectrim E5．95 <br> Incentive， 54 London 5 t ． <br> Reading RGI 4SQ <br> If you like the arcade game you＇ll love this Spectrum version．Incentive have／A bought the rights and has produced a version as clase to the original as possible in the Spectrum．

For those not familiar with Moon Cresta，the game involves blasting suecessive， sheels of aliens that are trying． to destroy you．However the？ aliens don＇t just sit there and let you shoot theen，they rush around the screen in circular patterns and will also dodge bullets if they can．Once a certain number of sheets have been exterminated the playes gets a chance to dock his section of ship with the next section．If he is successful， the new ship has inereased －fire power．This can be done lwice at which stage the shitp

（1）fires five bullets as oncel Naturally the atiens atso Het faster，dodge mare and even split into two when hit．

The program is well done with very fast action and impressive graphics．It has a colourful loading screen that is replaced by a menu that has ＇Icons＇rather like those used on expensive business machines．The menu gives the player the choice of keyboard Acontrol or any of the maior joystick interfaces．J．G．D． instructions
playability graphics
value for moncy
$100 \%$ $100 \%$ $90 \%$ 85 叫

Space games galore．Five alien blasting games for the addict

## Space Shuttle C64

Activision，CGL Hoc，Goldiegs Hill，Rouglton，Esser lG10 2RR

This is a very realistic simulation of a spase shuutle light．It has beero dectred after dowe comul． tation with NASA and incorpor－ dies many features．You arc grovided with a 31 page Fight Manual specifying how you My the shuthe．This is very well produced and costaiss bigh quality colour pictures of the screen displayt．A cardthoard overlay is provided to customise the fonction keys．
There are three Alight modes． Mode 1 gives a derio of a complere space fligh，from take off to se－entiy and touch down． During this you can exercise

exrors sod the mission is commpleted safely，in Mode 2 you lave unlimited fuet and the onboard compiliers cat take aver．Mode 3 is arull Rectecd Itighis．
buring luunch the screca thrates and thakes，on atcaining the cortect altitude you set ty a
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square，entatomal or diantond shaped．in＇s diffeut to stay in the right mode，the crafi switched from one to another by means beyond thy control．
There sre seven enemy weapons systems hard to idenisfy and harder lo shoot． These are also jumar motintains sad ctaters．I wasted time Igying to shoot these，frving mislaketi them for lanks．
Qverall． 1 felf the graphlics were nol sood chough to make a gnme of this compiexity workable－bul you may well disagrec．

## taslruchorts

$70 \%$
playability d0需
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＋2 $x^{5}$

HCW is 100 today! No telegram from the Queen, l'm afraid, but lots of good wishes from friends and readers, I hope. As the new editor of the magazine, the 1001 h issue seems an appropriate moment to look back at the past and tell you about our pians for the future.

## Past

HCW burst on the streets on March 8. 1983, with a lead story about the challenge the new Dragon machine was posing to the (then) well-established Colour Genie. Interesting, isn'1 it, that just two years later both of these machines have had great troubles and seem to have vanished from today's home computer scene of today. I
know there are lots of contented owners still using the machines, but it can't be claimed that the sales are earth shattering today.
Another feature of the first issue was an opinion column by Henry Budgett, then editor of Computing Today. In it he railed against the poor documentation often supplied with new computers and the number of bugs found in new machines. I have a feeling that I could run the piece again this week and it might be just as relevant. I'm sure that manufacturers have improved the care that they take over such details, but there are still machines being released to an unsuspecting public with litule niggles and bugs waiting to be cleared up.


## On to the present...

I was working for the magazine even before it's first issue. I had been asked to write my first software reviews and articles a couple of weeks before the first issue appcared and was very excited by the prospect of a weekly magazine featuring news, sofiware reviews and programs. The emphasis was always that HCW would be the first and best magazine for software. We have featured more soff ware reviews in a week than most monthlies can manage in three months.

Another feature of HCW at it's launch, which we still adhere to today, is it's emphasis on home micros. The magazinc doesn't Mirt with business machines or programs. We fee our readers are interested in games, educational and utility programs, but don'l want to know about the best spreadsheet since the duvet was invented.
Many things have changed since the first issus. The industry has certainly changed a great deal. The BBC, VIC-20 and Spectrum were with us then, but the Commodore 64, Amstrad. Atari XL and the Electron were just twinkles in their designers' eyes. Software was mainly sold by mail order and computers usually came from specialist shops. Now 25 per cent of all computers are soid by one high street retailer with the othes multiple stores making over 50 per cent of the market. Quite a change, I'm sure you'll agree.

HCW hasn't remained unchanging over this period either. Issue 29 was the first to feature a full colour cover and had the cassette cards of reviewed software splashed

## 

across the front. Thas contsnued for a year until Sinclant surprised us all by releasmig the Spectrum Plus. Thus was so important that for the first time HCW had a prece of hardware across it's cover. About a month later tt was decided thet the logo needed a brush-up and today's logo was seen for the first tume. This isn't the Sinal change, though

## Coming soon

Issue 102 is the start of something really new. HCW is to be completely redesigned and relaunched on March 5, 1985, Just two years after the Tirst
ue
Those who read regularly will know that last Autumn we had a reader's survey so that we could know what our readers wanted from a magazine like ours. In response to thos, things are seably changing at HCW

The лew magazine will look very different; new cover, new page designs and a whole hosi of new [eatures. There will sti]] be plenty of news, software reviews and programs for you to type in, but just look at the list of new regular features.

Ihere will be a new Readers' Page with puzzles, comments, jokes and hu-scores, including photographs of the best players We really reed your ideas for

thes one; which games do you want us to inctude? Do you know any funny jokes or computer storits. Are you the best dragon slayer in the town? If you are, then we need to hear from you soon.

Hardware and peripherals are becoming more important as people keep thetr mucros longer and want to extend the ways m which they use them. Although we have had occasional reviews of these products we will be featuring a whole page of reviews cach week in future. We occastonaliy have letters asking us to revew cernain ttems, but we would like more. If there is a product you would like us to review, tell us about it. We am to please'
The software revew pages will be looking different too There will be longer reviews of star programs, and look ont for Dauntless Dave. In the future Dave will be telling you just
what he thought of all the new programs. He tends to react in rather strange ways to the programs he sees, but more of him in lssue 102. By the way, BBC and Electron owners can have a sneak preview of Dave by lypang in fon Revis's programi in this issue
There will also be changes to aimost every other page in the magazsne, but I daren't reveal too much at thes stage. The boss might realise how much all thes H1]] cost and then I'm in Irouble.

Make sure you don't miss your HCW each week. Order it from your newagent or by post from the adifess on the contents page
P.S. Want to save money on software? Or do yot want an obedient robot of your own?

Issue 102, at your newsagent on 5th March, has offers that you won't want to miss? DISTRIBUTION

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## 











 HAve

## PROGRAMSCOMINGSOON

## THE COUNTS CASTLE

COMMODORE 64 E6.95 CASTLEGREYSKULL 4RKBPECTFUM 85.95

## SOFTWARE MANAGER

C.A. SAPHIER

## Entresctente

## 1984

ormummimunmmone vernegacender



The Onc has been neglected by the large software houses in favour of more popular micros such as the Spectrum and the Commodore 64. Therefore there aren't any games which could be classed as mega-games for the Oric. However, that doesn't mean there aren't any good games. It's been hard, but the good (and the not so good) games released during 1984 have been grouped together here.

Game of the year In all honesty, there weren't many contenders for this tille. I constdered the Oric classtc Xenon-1, but it was released 100 long ago. The only other game deserving this lutle was a strategy game called Classic Kacing by Salamander. Thus may come as a surprise for those who've never seen nt , since strategy gatnes are, on the whole, awful! This particular tule is an exception. It has briliant graphics, beautiful animation and, of course, you need to thank'

## Best shool-'ent-up

 It was difficult to deende which garne should receive this tutle, because there are quite a few fantastic shoot-'em-ups; for instance Xenon-1. Marc, Defence Force and Hellon to name but a few. They are as good as each olher, but I decided to award the tule to Hellion by Orpheus, purely because the others will be menthoned in other sections Hellion, with 1 t's very professional presentation. detaled characters, awesome speed and a mund-bogghing 101 screens, certanly deserved this titleBest adventure
With a relatively large RAM capacsy, the Onc is $\pi$ fact very sulted for adventure games, but afll the best adventures seem to be writen for the Spectrum! One software house renowned for the quality of it's adventures

# This week our experts look at Amstrad and Oric games: the best and the worst are all here 

is Level 9. Level 9 is supportung the Oric with it's massive, but logical adventures. Probably my favourite is Colossal Adventure. Another adventure worth a mention is The Hobbil by Melbourne House. It
certaunly supports one of the best sentence anatysers, and the graphics are stunning

## Most dificult game

This award must go to Mare by PSS. You are required to

Delence force: loudest game of the year

manipulate no more than seven of your digits simulareously. The animation of the characters is absolutely first class and the presentation cannot be faulied. All in all, a brilliant game which is impossible to play

## Loudest game

Defence Force - a Defender derivative by Tansoft - will atterally deafen you, but who cares with such an addetive shool-'em-up'!

## Yideo nosly

There were quite a number of games surtable for this tule. However, it must surely go 10 killer Caverns by Virgin. Thas game, whiten totally in BASIC, has the worst graphics I've ever seen on a micro, non-existem sound and is totally unplayable. Need I say more?
s.s.

## 1984 Amstrat CPCAK4 부ำ

The high standard of the firsı ever Amsirad awards bodes well for the fulure of home computing
Now avalable in most high street stores, the Amstrad CPC464 has become well established, and the Software Awards for 1984 have been chosen from among the best programs to reach the shelves this year.
The inaugural year of the CPC464 has seen the introduction of all manner of programs from the frivolously flightly to the seriously sober.
With rare exception these have been thoroughbreds of their kind - thanks largely to Amstrad's software subsidiary Amsofi

Value for money
Taking the lop award was Matcal from Camel Murros

## CRHFCECHDIC

With four useful toolkit programs on one cassette for less than a fiver, it wins the value for money award hand down and is an invaluable and to the home programmer.
Other software houses would do well to research the marketung strategy of a produc1 which retarls so cheaply

## Best graphtes

Streets ahead of all its compettors, Star Avenger from Kumia Computers wins best graphucs of 1984

But, sadly, it also takes the tut-tut award for not having a Joystick option, Control from the keyboard is nearly impossible in the faster challenging levels

## Mosi humerous

Most humorous program of the year was Er*bert, from Microbyle Software, whose endearing characters Conly and Borts could surely melt the heart of the most arden! joystick joggler. A nicer par of nasties would be hard to find

## Worst game

Undoubtably the worst program award goes to Soltd Evaders from Solid Software This bug-ridden shoot-out had to be played on top of the instruction page - which needed to be shot away first

## Premier adventure

Interceptor Software pushed Jewels of Babylon under the portcullis of the old year ta rescue the premier adventure award from under the noses of their nearest nuals Level 9 .

Sotiware house of 1984 Level 9 doesn't go away empty handed. Spectabsting in adventure games, Level 9 takes the soltware house award for continuing to strive for even better quality with each new release

Critic's choice
Easi-Amsword saves hours of work and innumerable typewnter rubbers.

Level 9: gofiware house of 1984

## Snowball <br> Snowball



Level 9 Computing

D H.


## TI-99/4A PROGRAMS

 a purthaty sumptis and as these celctraning to blow pustthe coler ate how the electronic indies all scteen Atrer a tex houk and when
evervom is going blue til the tave, a press of amy key will do the job for you.

## : 'ogram from 1 James wright


E. REM

THIS PROGRAM IS FOR THE T199/4A
7 REM BY JAMES, D, WRIGHT
9 REM "HAPPY EIRTHDAY"
10 LALL CLEEAR
20 CALL SCREEN(2)
30 CALL CHAR ( 6 a, "FFFFFFFFFFFFFFFFFFFF")
40 CALL $\operatorname{CDLOR}(5,5,2)$
50 CAL $\operatorname{VCHAR}(5,16,64,5)$
60 CALL VCHAR $(5,13,64,5)$
70 CALL VCHAR $(5,39,64,5)$
80 CALL CHAR (112,"1018JCJCふCJC7ETETETE')
90 CALL COLOR(11, 11,2)
100 CALL HCHAR $(4,16,112\}$
110 CALL HCHAR $(5,16,113)$
120 GALL. CHAR (113, "FFFFFF7E7E3C3C181日")
130 CALL HCHAR ( $4,13,112$ )
140 CALL' HCHAR ( $5,13,113$ )
150 CALL HCHAR $(4,19,112)$
160 CALL HCHAR $(5,19,113)$
170 CALL CHAR (152, "FFFFFFFFFFFFFFFFFFF")
180 CALL COLOR (16, 16, 2)
190 CALL HCHAR $(10,11,152,11)$
200 FOR I=1 TO 8
210 CALL COLOR(I, 9, 1)
220 NEXT 1
230 CALL HCMAR (16, 4, 104)
240 CALL HCHAR ( $11,10,152,1$ )
250 CALL HCHAR (12, $9,152,15)$
260 CALL HCHAR $(13,9,152,15)$
270 CALL MCHAR $(14,9,152,15)$
280 CALL HCHAR $(15,9,152,15)$
290 CALL CHAR (40, "FFFFFFFFFFFFFFFFFF")
300 CALL HCHAR ( $16,8,40,17$ )
310 CALL HCHAR $(17,9,40,15)$
320 CALL COLOR $(2,5,2)$
330 CALL CHAR (41,"FF7F3F1FOF070301")
340 CALL HCHAR $(17,8,41)$
350 CALL HCHAR $(16,7,41)$
360 CALL CHAR (42, "FFFEFCFAFOEOCOBOF")
370 CALL HCHPR (17, 24, 42)
380 CALL HCHAR $(16,25,42)$
390 CALL CHAR (153, "0103070F1F3F7FFF")
400 CALL HCHAR ( $10,10,153$ )
410 CALL HCHAR $(11,9,153)$
420 CALL CHAR (154, "BOCOEOFOFAFCFEFFF")
430 CALL HCHAR $(10,22,154)$
440 CALL HCHAR (11, 23, 154)
441 CALL CHAR (56, "8142241818244281")
442 CALL COLOR $\{4,5,16$ )
443 CALL HCHAR (19, 1,56, 224)
450 CALL SOUND $(300,262,0)$
450 CALL SLUND $\{300,262,0)$
470 CALL SOUND $(600,294,0)$
4BO CALL SaUND $(600,262,0)$
490 CALL SUUND $(600,349,0)$
500 CALL SOUND $(1200,330,03$ 520 CALL SOUND $(300,252,0)$
530 CALL SOUND $(300,262,0)$ $540^{\circ}$ CALL SOUND $(600,294,6)$
550 CALL SOUND $(600,262,0)$
560 CALL SDUND $(600,392,0)$
570 CALL SOUND $(1200,349,0)$
580 CALL SOUND $(300,262,0)$
590 CALL SaUND $(300,252,0)$
600 CALL S0UND $(600,262,0)$
6:0 CALL SOLND $600,440,0)$
$62 \cup$ CALL SOUND $(600,349,0)$
630 CALL SOUND $(600,330,0)$
640 CALL SOUND $(600,294,0)$
650 CALL SOUND $(300,494,0)$
660 CALL SOUND $(300,494,0)$
670 CALL SOUND $(600,440,0)$
680 CALL SOUND $(600,349,0)$
690 CALL SOUND $(600,392,0)$
700 CALL SDUND $(1200,349,0)$
720 CALL SOUND $(300,262,0)$
730 CALL SOLND $(300,262,0)$
740 CALL SOUND $\{600,294,0\}$
750 CALL SDUND $(600,262,0)$
760 GALL SOUND $(600,349,0)$
770 CALL SOUND $(1200,330,0)$
790 CALL SOUND $(300,262,0)$
800 CALL SOUND $(300,262,0)$
B10 CALL SOUND $(600,294$, O)
B20 CALL SOUND $(600,262,0)$
030 EALL SOUND $(600,392,0)$
840 CALL SOUND ( $1200,349,0$ )
860 CALL SOUND $(300,262,0)$
870 CALL SOUND $(300,262,0)$
BaO CALL SOUND $(600,262,0)$
B90 CALL SOUND $(600,440,0)$
goo CALL SOUND $(600,349,0)$
910 CALL SDUND $(600,330,0)$
920 CALL SDUND $(600,294,0)$
930 CALL SDUND $(300,494,0)$
940 CALL SDUND $(300,494,0)$
950 CALL SOUND $(600,440,0)$
960 CALL SOUND $(600,349,0)$
970 CAEL SOUND $(600,330,0)$
980 CALL SDUND $(1200,349,0)$
981 CALL KEY(O, K, S)
982 IF $5=0$ THEN 981
983 IF $K=30$ THEN 984
984 CALL COLOR (11,2,2)
985 CALL COLOR(11,11,2)
986 CALL COLOR $(11,2,2)$
987 CALL COLOR (11, 11,2)
988 CALL COLDR(11, 2,2)
990 FDR DELAY $=1$ TG 900000000000000 1000 NEXT DELAY


## Program compactor

One of the most annoying features of the BBC is lack of memory, If you have a discbased machıne, in MODEs 0-2, you have less than 6 K to play wath! So programs must be as compact as possible.

In BASIC, thas may be achteved by avolding unnecessary spaces, REM statements and using plenty of muluple statement lines. All but Toolstar had some sort of facilny to shorien a BASIC program. Toolkit allowed you to remove REM stalements and/or unnecessary spaces. However, it didn't create multiple statement lines.

Addcomm has the most llexible compact facilsy of the lot, Not only does it remove unnecessary spaces and REM stalements, it also creates as many muluple statement lines as possible and allows you to specify wheh part of the program you wish to compact. U-Tools and Caretaher allow you to remove unnecessary spaces, REM stalements and create malipte statement lines. None of the compactors attempted to check whether a KEM statement to be removed was referenced by a GOTO statement.

## Fpand

Once the program is compacled, it becomes imposstbly difficult to read. A facility th split muitiple statement hares and tnsert spaces woutd come in useful here and only Toolkut and Toolstar lacked such a factlity. All the other ROMs had a tster which separated mulaple statement lines. On Addcomm however, if was rather limutusg in that you could only list one line at \& tume!

Repar had program Surely all BBC programmers must have come across the hudeous message "Bad program' al some tume or another. All the ROMs supported some sort of repar laciluy. On Toolku, Addicomm. U-Toots and Caretaker, the reparr facility worked wath varying degrees of success. The most riexible was Toolstar's. The command *FLIST allows you to list bad programs with all the corrupted bytes highlighted and the memory address at which those lanes restde. Using this facility, the user may edn the program thmself.

Funcuon key lister One of the most uselull features of the Beeb is the function keys. One problem is, onge you've programmed them, there's no casy way to reprogram them
apart from retyping the definmon. Apart from Toolku and Caretaker, the others allowed you to list the function key defintions and then edit them with the COPY key. On Caretaker, there were commands to load and save function key definttions.

## Move program

If you have a disc-based machine, you may need to move your BASIC program down to \&EOO. All the ROMs had some sort of memory mover. On Toolstar however, you had to spectify the start and end address of the program as well as the destination address, then issue an OLD command. On all the others, the BASIC program from the current value of PAGE to TOP was moved to the destination address and PAGE was set approprately

## Memory status

It is often helpful to know the vatue of ceriain memory locations. For example the current value of PAGE. HIMEM. LOMEM, program length etc. On all but Toolstar, there was a facility to display certan memory locations. On Toolku, free memory, program size, next location, PAGE, LOMEM, TOP and HIMEM are displayed. Also, there is a factsty to display information on such thmgs as L.ISTO, WJDTH ecc. On Addcomm and Caretaker, the information given was rather limited. On U-Tools, a useful variety of information is displayed, bui they weren't presented in a near fashon like Toolkı

## Manual

Tootku comes wath a 32 -page A6 manual Despret it's smal! stze, it contains all the necessary informasion and the individual commands are explatned in detal. There is also a section on rechnical information such as mesmory usage However, there is no index.

Addcomm comes with a 72 -page AS ming bound manual wth a bright green cover. There is a breef introduction to it's general use and then a description of each command. The descriptions are good and there is also an mindex
U.Tools comes with a 30 page AS ring bound manual. After a three-page introduction, each of the commands are explamed th detats. There is a full index and a complete list of errors together with their full meanjngs

Toolstar comes wath a beautiful 136 -page AS ring bound manual. It starts with an introduction followed by

then an jntroduction to machune code ${ }^{1}$ The rest of the manual is divided into sections covering machine code programming alds, toolkat commands, disc commands and the use of these commands wthin your own programs. Each section is coloured so that you may find your way around the manual without even using the very comprehensive index. How all manuals should be produced.

Caretaker comes with 由 30-page AS ring bound manual After a brief introduction, each command is explaned adequately. There is a complete lis1 of error messages, but an mindex would bave been mes

Htsceltaneaus
A feature unique to Tooikit is it's program editoc. Thes allows you 10 insert or overwrite parts of a lane quickly and eastly Although it is nowhere near as good as the full screen edators as used by MSX systems or IBM, It turned out to be extremely useful for cortecting a small part of a long line. Toolkit also has a very useful memory dump facility
It must be mentioned that Addcomm supporis many powerful graphics and Logotype commands as well as the general toolktt commands. Also
allows you to define a user defined character on a large gnd. There were some rather trival commands such as POPFOR and POPGOS whets allows you to jump out of FORNEXT loops and GOSUBs, somethung a good programmer would never do in the first place.

Perhaps most mportant of all, Addcoms doesn't use the conventional star command system. Instead, the commands are used in a sumular manner to BASIC keywords, i.e. they don't have to be preceded by stars, can form part of a multuple statement litne and cas incorporate expressions.

U-Tools has some interesting commands not implemented by any of the others. For instance. there is a command to save a block of memory as LOCKed file, useful for protecting your machine code programs. "ROMS' lists the names of the ROMs in your machune, while a memory dump facility and full printer dump routine for the Epson range of printers were supported.
Toolstar supports many machıne code programming ards and disc commands as well as BASIC toolkit commands. Some useful commands are ""RESTART" to clear memory and "CONV" to convert decimal to hexadecimal and bunary.

| Toolkh 47 |  | U.Tool E37 | Toobrex 04 | Centaktr 834 |
| :---: | :---: | :---: | :---: | :---: |

Vumber of
commands
find
Teplase
Verify
Verge
Vartable dump
Renumber
tove luns
Compter proscam
Expend
Bad progran mx
Fukhtion key lict
Stufl program
Memepry slarus

Caretaker was the only ROM to have a facilty for one-key entry (allows you to enter keywords with one key stroke as on the Elk) and a tab facility. this would be most useful for the non-touch typists; the tabbing facinty is useful for all assembly language programmers who like nicely formatted source code.

## Conclusion

Toolkit was one of the first foolku ROMs on the markes. However, it still remams one of the best. Admuttedly, some of the expected commands are missing, but all the implemented commands are extremely user-firendly. It's obvous that a lot of thought has gone mito the design of each of the commands. As such, $1 t$ is highly fecommended, especially to Beebug members who may obram ff at a very reasonable price.
Addcomim ts definnely the best value for money ROM on the market. As well as lots of useful toolkit commands, it supports many powerful graphies commands. I felt that some of the commands weren't as 'polshed' as Toolkit or Caretaker but nevertheless, for those on a tight budget, this may be the fight one
U-Tools offers a useful range of commands, but has some 51raking omussions.

Toolstar is rather differem in that it offers many machine code programming ands and disc related commands as well as toolkil commands. It misses quate a few of the 'standard' toolkıl commands and, as such. can't be recommended to BASIC programmers. However, is a general utins ROM , it is only matched by Disc Doctor
Caretaker is a very profess. ronal product. It's major disappointment was the cumbersome find and replace facility. if this was updated, Caretaker would probably be the best toolkıt ROM avallable As it stands, it's on a par with Toolkit and can also be recommended.

## Addresses

Toolkit: Beebugsoft, PO Box 50, St Albans, Herts
Addcomm: Vine Micros, Marsibborough, $\mathrm{Nr}_{\mathrm{F}}$ Sandwich, Kent CT13 0PG
U-Tools: Intersoft, 26 Netherfield Rd, Sandacre, Notts NG10 SLN
Toolstar: Pace, 92 New Cross St, Bradford, W Yorks BD5 8BS
Caretaker: Computer Concepts, Gaddesden Place, Heme! Hempstead, Herts HP2 6EX


## And parties mean party games－like this one from Mike Roberts． Blow out the candles within a time limit－but don＇t get out of puff

```
0 PEM CLR
1 GOSU日?3153030/E839:PRIffT"A"
13 REM BLK GR }
```



```
27 POKE532.g%,154POKES32s1,15:MmFEEK\53278)
```



```
53 J=(NOTPEEK(J1))AFID2S5:MD=8:YO=@
66 1FF1THENJjq4
```



```
ge IF `JANDE)AND<YP<2(NJ)THENYD=r0+4
```



```
118 \F(JANEB)ANMO<XP(250)THEN以XD=$0.4
13! IF(JA|ロI6)THETVGOSUE2@g:GOT015?
144 GOSUER6 I
157 KP=\P+\<प:YP=YF+YD
170 FOKEMK,XP:POKEMY,YP:FOKEEK,XP:POKEEY,YP+E!
183 GOSU日ลロa
136 G0TOS3
209 FOKE゙WK, XP-24&FOKEWY, \P;POKE53269, 255
2ᄅ己 XmPEEK(5327马)ANDG: IFX=9THENSC=5C+14G05UE664
234 REM BLLI
235 EF=EFF+1:IFEF=10THENFI=1:EC$="#"
248 RETURN
2E1 POKE53269.254
2ア3 REM 日LM
```



```
28% RETURN
300 FW=FK+(INT(RND(TI)*G+.5)-3)&POKESD+6,FW
313 FW=FY+(IMT(RND(TI)**4*,5)-2)&POKESD+7,FW
325 REM HOM-TXT-WHT 5*CRL
```




```
338 REM CRL
339 PRINTEC$t*-XHAUSTION -ACTOR:"EF"H:
351 REM LRD
352 1F%L<S0THENVLS="0"
36.5 TL=TL-1:IFTL=0THENGOTO?55
378 RETEPPN
390 PEM CLR-TXT-CTH-GR2
```



```
403 REM 己#CRD
404 PRINT"國 ,T'S I. -EE M'S BIRTHDAY TODAY."
417 PRINT" IE'S 10%, AND LIKE ALL, GOOD BOYS ANO"
430 PRINT"GIRLS. HE HAS A PARTY."
443 PRINT" IUT W*HT'S THIS. NLL THE GUESTS HAVE*
456 PRJNT"|ROUGHT HIM CAFES WITH CANDLES TO BLOW"
469 PRINT"OUT - THAT'S 190 CANDLES IN ALL, tOSH!I=
4 8 1 ~ R E M ~ C R D ~
48E PRINT*I SE A JOYSTICK IN PORT & TO MOVE ME"
495 PRINT"APOUND AND THE FIRE GUTTON TO MAKE BE"
50B FRINT"BLOW GUT THE CANDLE."
S2! PRINT" -ON'T ELGiN TOU MUCH OR a WILL GET"
534 PRINT"EXHAUSTED ANDO NOT EE ABLE TO MOVE FOR"
5ムア fRINT":A WHILLE."
SEg PRINT" IHERE IS ALSO A TIME LIMIT "TJLL THE"
ST& PRINT"END OF THE PARTY, WHEFI ALL MY LITTLE"
586 PRINT"FRIENDS WILL EO HOME." TEASE HELP ME"
598 REM CRO
SgS PRINT".n TRESS #NY JEY"
F12 GETA末IIFA$=N*THENGIE
FEA PEM CRO
Eご PRINT"MREA今SE UAIT FOR A WHILE FOR THE GUESTS*
F:GR PRIN+"TO APRIVE.....**
G51 CETIJRT.
554 Y*INT(RNLD(TI)* 175)+50
677 %=INT(RND(TI)*175)+50
690 POKESD+6,X+13:POKES0+7,Y-20:FX=X+13:FY=Y-20
P83 {FFR=1Tr:EN7E3
```




```
742 K=PEEK(53278)1RETUFN
755 FOYE53280,14:PONES32&1,14&POKE198,0&POKESD+21,0
7E7 REM CLR-ELK - E*CRD
```



```
790 REM 2*CRO
TE1 PRINT"HEOLLL THE GUESTS HAVE GONE HOME TO WFTCH"
7S4 PRINT"TELLY RECAUSE THEY HRVE BECOME BORED*
8Q7 PRINT"WITH YOU TAKINE SO LONG TO BLGW OUT ALL*
820 PRINT"OF THE CANDLES."
837 PRINT" IOLEVER YOU GID MANAGED TO BLOW GUT"SC
846 FRINT"CANDLES, WHICH ISN"T TOO BAD."
B5g REM 3*ERD
B5G PRINT"ITMA TRESS ANY KEY FOR A NEW GAME"
87己 GETA$tIFA****THENB\己
88S RUN
```



```
91: REACR:IFE< >CKTHENFRIITT" FOU HAVE MADE A MISTAKE IN LINE"(L*1今)+10!5:5TOP
924 NEXTL
937 FORI=GTO7:REAJ゙A:FOKE5`287+1,A:NENT
95G FGRI=QTO7:PEAGA:POKE2040+1,A+250:NEXT
963 POK&5ふこ?1,19こ:POKE53こ7?.19己
```


## 

976 FGRI＝0TO15：READAEPGKE53248＋I，A：NEXT
 1月WE POKES3269， $0+2+4+8+16+32+64+128$
1015 DATA日， $0,0,128,0,0,120,0,249$
1 1028 DATA日，0，0，0，15，128，0，192，335

1054 DATA14，3，24日，0，2边，0，0，224，795
1067 DATA31，14，0，0，11 己，3，240，0，400
1080 DATAC48， $0,192,0,0,15,128,0,593$
1093 ロATA0，0，0，0，0，0，56，0，56
1105 DATA $0,128,0,0,0,0,0,0,128$
1119 DATA $0,0, \theta, \theta, \theta, \theta, \theta, \theta, 0$
1132 OATA $, 0,0,0,0, \theta, 0,0, \theta$
1145 DATA $0,0,1,64,0,15,80,0,160$
115 BA पA $6,80,0,63,80,0,15,208,596$
1171 口ATA日，15，192，，3，0，0，2，ᄅ1玉
1184 OATA日，日，10，12日，0，10，128， 0,276
1197 DATA10，128，0，10，12日，0，10，i2 1.14
1210 ПATA0，10，128，0，11，128，0，0，277
1 にころ ロATA0，16，日，0，16，0，0，16，4B
1236 DATA0，0，E4，0，0，100，0，0，184

$1 こ=を$ OATA5，195，64，5，185，64，6，196，700
$17-5$ DATAE4，6，186，64， $5,254,64,6,550$
1298 DATA254，64，6，254，64，6，196，64，899
1301 DATA5，185，64，1，185，0，1，185，E26
1714 DATA0，1，185，0，0，152，0，8，333

1340 DATAD，0，126，0，0，126，0，0，25
1353 DATA126，©， $0,12 \mathrm{E}, \mathrm{B}, \mathrm{0}, 126,0,378$
1 3EE ロATAD，1E6， $0,3,126,0,0,126,378$
1379 ПATA ， $8,126,0,0,126,0,0,252$

1405 DATA日，126， $0,0,126,0,0,126,378$
1418 DfTA日， $0,125,8,0,126,0,0,252$
1471 ［atan， $0,0,0,0,0,0, \theta, \theta$
1444 OATAB， $0,0, \theta, 0,0, \theta, 0, \theta$




I can think of three main reasons for buyugg books of games listings for a partucular computer. Firstly, to demonstrate the capabilities of the mashune in one way or another: secondly, to pick up useful programming techniques for that computer; thirdly, and not jeast, to enjoy playing the games after you have keyed them in. With these thoughts in mind, I have been looking al two recent books.
A QL Compendium by Martm Gandoif and Robsn Kange, $£ 7.95$ from AddasonWesley Publishing, was obviously written to salisfy all three of my crterta. The first two chapters are taken up by hints and tups on using the QL and some highlighs of SuperBASIC. The tune ft took to read these was well spent, and I don't recomend skypping thus section: for instance, did you know there is a three-key combination which will crash the QL so thoroughty when pressed that only a RESET will restore it to action? The authors' recommendations on keying in programs and making backups are very sound
After a useful short program to explore the pecultarties of the QL BEEP instruction, the book continues with an 'art' section which demonstrates many of the QL's graphic capabilties and allows the reader to draw pictures on the screen. The next section is on games of skill, and the one I chose to key in was a variation of Hangman with a gullotine instead of a scaffold. I have to confess to russspelling easy words just to watch the gullotine working' In the 'weapon' games sectoon, I chose Depth Charge, which demands etther a joysuck or faster reactoons than mane; I was confused at first because my ship only appeared after.I moved it. I enjoyed the game, in

## This week, Colin Wilton-Davies looks at books of games listings for the OL. There's good and not so good in his selection

spite of finding lines like:
430 IF INKEYS $=$ ' ${ }^{14 *}$ THEN GO TO 430
when
4.30 PAUSE
would do the same job. I chose Noughts and Crosses from the 'traditional' sector, liked the graphes, but was disappointed when 1 round I could win every time 1 haven't Ifted etther of the two-user games yet.
I gave the book two out of three for demonstrating, two out of three for educating, and three out of four for amusing seven out of ten over all

1 kept Tim Hartnell's QL Games Compendiam, $£ 5.95$ from Jnteriace Publicatons, tuntil last, as I was expecting a real treat from this author of so many good books for the ZX81 and Spectrum. The introduc-
tion told me 1 should be using the book for fun, and that increasing my programming skilis and decisıon-makıng ability was just a side-effect, so Tim Hartitell might disagree with the wenghting of my three criteria. Tough.
Tim's version of one of my favourne computer games 15 catied Othello, and was a great disapporntment. 1 lost a lurn for attemping an illegal move, bul won the game because the program's sirategy was so poor that It could take all the pteces. The program can only tell if the game is over if all squares are covered - thus is thot the only way thus game can end. There was also a really classic endess loop in the program: print board, if end then pront board, if end then print board; delete Ine 920 to remove this bug.
Next I tred Magician's Maze, a mine-room text adventure wiht
no hazards whach was bug-free bus dull. Orbit purported to show a planet in orbit around a sun, but in fact this was a better demonsiration of quantum leaps. For those misied by advertising hype, a quantum leap is characierised by a move from one orbit to another so abrupt that the object does not traverse the intervening space; it disappears from one orbut and appears in the other

Finally, 1 tred Detective Q, whech unaccountably reminds me of some board game, and which 1 really enjoyed.
The book ends with a number of ideas for compulerising existing games, a good biblography of computer games and a rather irrelevant glossary (who wants to meet COBOL in a games book - or anywhere else, for that matter?), By the way, if anyone can find an example of the use of the SELect On insiruction in thas book, I'lli buy Tam a drink when I meet him.
Now to quantify. One out of three for demo, one out of three for education, two out of four for enjoyment, add up to four out of ten. Watch out for better thangs from Tim Hartnell.


## DELIMATMAKGEVITW

## A numeric keypad will make life easier for most BBC owners. HCW editor Dave Carlos checked the Softlife keypad out and gives you his verdict

## 


herters uxess of the BliC+ will be aware of the problem of entering mumbers from the kevberatd The mumber keys are spread out in a long lige and vou have io move tround a great deal to get Jrom trie detid to the othet
sultite has dewsed there is a hetter solal ons, in the format of a numere teypad it comprise to keys in = four by font arrange ment all coptatned in a plastic tance 5 cm ligh, 8 cm wide and 15 em deep If you open up tàe case there is mare space, filled with atr rather lhail wath ahy workity? parts, but thas siac allows you to plase the pad at the stute of the 1HC end have the kevs al just the corzeut heith for tany we
line keys are arranged rather hke a caktisilor pad whth 0 on the botsom lute and the other numbers above in sels of threec Thus is likely to make it very easy for thase who tise adding macthites to adiap to this pad The exira keys perform functions whech are lihely to the of use to thase wanturg fast duta entry 1 nere is an ENTLR key, whech performs relarn, a DF LET! key und a DHIETE IINE Key thel clears everythung back to the stust of the curyent hase
The others ure namericals based with it manas for serative kalues, traptal e fut exponent values and a fill stop for decimal values Al; whed thes is a very wel. thought oul ard exectuled design The keys have a very posalve feel and should please mont users

As with most hurctware 都dons, there 15 a sofiwarc component to thes product ants this is fupplied oft a chap to fit The REC sideways ROMI system It is easy to mnsiall, although I do thisk that the documentalion conld have included a diagram and works very well indeed if you pul it inta a lagh priority socket
One of the extra features of thus pad iy the programmabte software whith is also continter

# Talke the stralin from your cligits 

In the chnp. Thes means that yout can make the kess axform ans function you need instead of the ate fanctions. Thas is likely io be of great valise to anvote wanting to curteriuse a BBC mathone and anly have tstall number of

uses for this in scheols, hospitals, muspums हnd andustry lo pratrder air cheap and stmple bewdata system, ist store for eximple, and the BH need not be on public vew at a!
The onlv quitbles I the are that ithere wis no fality for auto
tepeal keys and the software doss like to be very hogh in a prionsty system. Both of there are bitikely to deter semous users Irom what ts geod and well designed producl, if maght even pevetit kevberard fandure due to ayer expobile to soint games


Page 22 HOME COMPUTINGI WEEKLY 19 February 1985



One of the most powerful set of machine code commands atatable to the 280 CPU are those which allow the programmer to copy a block of memory from one location to another. By using just one command, which is only two bytes long, it is possible to cops a block of several ktobytes of memory to another area of RAM

In this article I'll show you how to use these command.s There will be some examples to try on the Specirum compuler, there is no reason why these examples could not be modified to run on another 280 micro, provided appropriate changes are made to memory addresses.

The mnemonics of the ZRO's four block move commands are LDI, LDIR, LDD and LDDR All commands use the HL and DE register pairs to point to addresses in memory, In general, the value held in the bvie whose addeess is contanned in the HL register is copied to the byte whose address is in the DE register. The shorthand used for thes is (HL) - (DE). lhis fcature is common to all four commands, but each command daes something slughty different having carned out this basic copy procedure.

LDI: After (HL) - (DE), the values in HL and DE are meremented (e g. HL $=\mathrm{HL}+1$ ), and the value in $B C$ is decremented (1e. $\mathrm{BC}+\mathrm{BC}-1$ ).
LDE): After the byte copy, ant the values in HL , DE , and BC are decremented.

LDIR: This is like LDI,

> David Nowotnik shows you how to copy blocks of memory from one place to another. You can modify his instructions to run on any $\mathbf{Z 8 0}$ machine

|  | Mnemnniez | Bite talues | Comments |
| :---: | :---: | :---: | :---: |
| 2¢0\% | L. 0 HL. 16384 | 33,0,64 | Display file ssar |
|  | LD DE, 24200 | 17,112,910 | Save file starl |
|  | 1. D PC. 6912 | 1,0.27 | No. of bvien to move |
|  | 1 DIR | 277,176 | Move them and |
|  | RET | 201 | return to 日Ask |
| 25012 | LD HI, 25200 | 33,112.98 | Saved file stirt |
|  | I. $\mathrm{D}^{\text {DE, } 16.384}$ | 17,0.64 | Display fte starl |
|  | 1 D BC. 4912 | 1.0 .27 | No of buies to move |
|  | I DIR | 237.176 | Move them and |
|  | KET | 201 | return to BActe |

except that the operation is $/$ one byte value at a tume, wherereperated unt: BC holds the valut of zero.
L.LDI)K: Lake LDD, but the operation is repeated until BC holds the value of zero

LDI and LDD3 will copy onls as LDRR (LonD Increment Repeat) and LDDR (LoaD Decre. ment Repeal) will move a Jarge number of byte values. In all cases the regleset par BC is used as a counter. For LDIR and


LDDR. BC is used automatically as a counter, as the command wall not stop until BC equals zero. In the case of LDJ and L.DD, you would use liese commands th a loop, will appropriate commands to measure the varue in BC, and loop back if not zero.
fo use any of these commands, you would firss load the dessed values into HL. DE and BC , then use the appro priate block load command. For LDI and LDIR, the start addresses of the source and destination blocks are louded into KL and DE , respectively.
for LDD and LDDR, the corresponding end addresses are placed in these registers. If the block move is straght. forward, that is, simply copy a block of values from onc locaton to another, then the Repeal insiructions should be used. If the block move is more complex, e.g. If you want to move a block untsl a certan byle value is found, then you should opt for the single byte opy commands, with approprale check routines
If there is no overlap between the block of bytes being copied, and those to which the block is beng moved, then there is no reason why ether LDDR or LDIR should be used. However, if the source and destination blocks do overlap, then the correct chotec of LDIR or LDDR is vatal to ensure no ertors in transfer. Figure 1 shows which command is appropriate, depending where the overlap exssts.

You mat have noliced that in most arcade games on the Spectrum you get unstan? changes of screen display from the instructions to the first scene, for example. These use the 280 machure code block moves. There is no reason why
you shouldn't use this effect yourself, and the following example shows you how

In Table 1 you'll Find the assembly language lisung and basic machife code loader oi two block move roulures. The first stores the displas and atirabute riles in an area of RAM, whtle the second reverses the operation

Type at the BASIC loader and SAVE it. After RLNMmg
the program, list the program, then call the first machne code couture with the direct commard - RANDOMIZE USR 25000. Clear the screen with CLS, then copy the saved block back to the screen wirh the command RANDOMIZE USR 25012. The lising (the saved display) should be insianily returned to the screen. You can save and reaum any display you wanl by

## this method

The routine is designed to rum on both 16 and 48 K Spectrums. You'll find there isn't much space for a BASIC program if you want to expand my loader routine. If you have af 48k Spectrum, you can move the machine code rounine and the storage area up in RAM, whh approprate changes to the CLEAR command, the USR and storage area start addesses.


Figure 1. Choice of block load command with overlapping blocks.


## Ser－power saely C64 E7．95

Micro Power．Sheepscar Hec，is Sheepscar Si South，Leeds ILST IAD

There are plenty of games around where you have to jump your character from one pint form to another across the screen，$W$ hat is different nbout this one is that Jack can not only jump，bui also fly wath the help of his turbopats．
This means the platforms can be much further spart than is u5va，ly the case，and af the hagher levels same very tricky mathotuvring to meeded to get from one to the next．

There are live leveis，and at cach level you have to guide Jack from one stde of the space garage
in wheb the has been imprisoned to the ofher and back agatr live umes，to coilect fuel pods for his slarship，You can choose to starn at any level，a nuce fealure，bui ut is advuable 10 master the early levels hefore attempting the laret ones．
The graphoss and sound ane up to the high stapdard I flave come to expect of Commodore games． though mot in any way excep－ tonal．The rame，though not conspicuously orginal，is a very good one of it＇s type，and great fun to play．
insiructions
ptayability
gfaphucs
value for money
H N ．
80 每
$85 \%$ 80苗

## 

## Smuggier C64 <br> E 7.95

Superior，Depi C，Ground Floor， Resent Hee，Skinner Liz，Leeds

From the ithustration on the prack aging I wsurned I was going to have fun sneaking bastels from ship to shore ander the ever watchfol syer of the comstguast． Well，I was mistaken！this is just abother variant on the theme of moving plaforms，vamashing steps and edversarics

You must catch the barrels as they fall from the ship，negolsale the obstacles，get to the top of the screen and throw the barrels， back on to the shtp．The number of bastels yor must put back vanes from screen to screen，and 15 displayed at the top of the picture
To add to the stlliness your adversaries are kangarcor and

## Big Ben C64 E7．00

Interceplor，Lindon Hie，The Green，Tadley，Hants

Giz has been trapged by Jem the evil watard，and has to collect thurty gold coins to open the f＇tunnel Teading to Big Ben＇s bell （so he can ring the bell and free jhimselr He can travel around to collect the coists on foot of in a wrbo plarle．The plante is faster， but he has to get out of the plane， to pick the coins up and the landing pads aren＇t easy in identify
This is vartant on the platform type of gume．There are platforms，moving stmaresets， chams to clamb and ather ansorted obstacles．There are also tsetonators dotied around，and standing on one of these cetuse Giz to jump bpwards， 50 il you want to siay on e particuarl level you have to jump over the detonators，：reversal of the ｜usual siluation where you jump 1 to change levels

Collectung the first few coins is comparalively easy，but it gets harder．Coltecting all \％of will inke a lot of practuse，It＇s matractive and entertatning tame and， though not startingly original． it＇s worth looximg twice hi．
instructions
playability
graphics
value for money


## Jack and

 Ben
## Sample these new arcade games featuring Jet－Power Jack and Big Ben

## Henry＇s House C64 ER 95

English Software，Box 43，Man． chester M60 3AD

This arcade game loaded ensaly and quickly and then went through a demonstration mode These screcns have been photographed and reproduced on the cossette falay so you get an tdes of what to expect．

The alm 5 to gulde young Prince Henry around his royal houschold explornge and investi－ galing every corner it is a ladders and levels tame，bul not stratghtforward．Each screen is different，set in another room． and for each new room lam strategy must be discovered．
The instructions do not explain any of the strateges，bel give tunts as to wituch article fin the room is mportant os far as
ganing access to the jext room as involved
Overall this is a good game wath increasingly difficult levels The graphics are weil done and the music passable
Csing the burth of Price Hal to sell a computer program is questionable，but the game has sufffictent ofngralaty to make at －best tepiler．［ have just one quary，Why is Pance Heary wearing an Arthur Scargill har？
intructions
ease of use
75 新
70
$85 \%$
$80 \%$
graphics
value for money

penguans．l＇m stuil trymg to work this out：there mist be some signticance，bui jt＇s got the beaten
There＇s a demo－screen which will run through all the available screens and the author hath ancluded the usual music while you play
If thas 15 your zype of garme you may wish to buy it，however，is． far as 1 can sce，nothang unusual

M H．
instructions
case of use
$70 \%$

0\％
vilue for money
$60 \%$

$\qquad$
Mutant Monty Amstrin CPC464 E8．95
Amanfa， 169 Kings Rd．Brent woad，Escer

Grtantigg graplues and at mult Itdinoss arraty of screet＇s pratide a colourful display thr＋18thi the entire duration amazingly clever a ame．
Gusding Monsy by using etthe the keyboard or a joystien throunh a complex variely of fast moving havards is shallesge indeed
I found it diffreutt io sion playing the game long enaugh le write this review，whith serves to emphasise just how compulsuve it catl become
Lighteming fass reactions are assentiol in trying to avoud awful nasties lske the Poratirionas and the rarer Ounsinum Letapies

Having secured all the gold， Monty then has to rencue s maiden in disitess．Allhough desperate to tee just what the disiress looks jike（1），and not having reached that part of the F game yet，I can＇s comansent on it

There is no reason to believe the graphics will be any less appealing，than all the other pages shown on the demon－ stration sequence
Played against the clock for bonus points your five lives are at risk．Trying to beat the clock eads to tnevitable errars that a more catuous approsch might well have avoided Alternatively， cavtion takes time！

D H．
15strtictzong
playabilty
graphics
value for money
$100 \%$
$100 \%^{\%}$
$1000^{\circ}$
$80 \%$

Here le two pregrat in we wh 4.0 lime gars buril
 dat whew werime calm... .114. Aht tat (1) prens at ther athl betw fothe y wive dere








 I: an yetere aty dimes mime

 mimher of afedies

## Program one How II works

## 

月-15 set up arcays
20-50 draw cake and candles ort-k0 ammute condle flame


guxd. lime hapm bethday turs ant mestike

## Program two varables

 candles
W- seiects candle to have flame fluker
x,y used to position candles in oval shape
n itsed to draw two otat thapee te, me atied be read mustul dilla t ma mber ol untich nole is payed p.4.s cengal of ne e
f. seresa, purpose loup
du de ay loop

## Program two <br> Huw 41 works

10-110 ditherthon, cet ap arpars 120-140 wet up ralidorm nutmbers

190)-320 drams gante
$340-500$ asks question, shecks -atume
gonv-wor graphus

## Prograin Iwo <br> Yragrables

Dith p, Dim I fresent co-ordinates
Dim cn, Dim d candle coordinates

## Dim ns mames

da, ta used to read data
pr number of presents displayed ce number of cundles displayed ma name displayed
atr yoltr aлswer
r general parpose loop
d de ath loop


Progromit screen dump



```
.0;"\varrho"&AT t+2.O: INK RND*S+1:'E": NIEXT &
    5 1 5 ~ F O R ~ n = 1 ~ T O ~ 1 6 ~ S T E F ~ 1 5 ~
    520 FOR f=1 TO 12; LET }x=日-8*COS (f/6*OI)& LE
n+タ+6*SIN (f/b*FFI)
```



```
ND*S+1:"E":NEXT f: NEXT ก
1000 LET p=&: LET a=2: LET r==日
1010 RESTORE 1030= FOR f=1 TO 25: FEAD tu..
t=1 TO tu: EEEP .OS. ne: NEXT t:FOR d=1
T d: IF f=6 OR f=12 OR f=19 THEN FAUUSE
1020 NEXT f
```




```
,D.5.b.**r.5
1100 PRINT AT 21.0:" loOth Edition ot , ..
    ": PAUSE
```

Prukram 2 sifeen dump


Jiving 2

0 REM Eurthadve Ey A．t．Bira．
5 RANDOMILE I GO SJR GINOO
9 BORDER OI PAPER O：INF O：BRIGHT 14 CLS
10 DIM D（きか）：DIMr\｛する）
20 OiM C（33）：D1M alj3）
30 DIM ns 110.41
40 RESTORE SO：FOR $\uparrow=1$ TO SO：FEMC datadt $-E^{*}$ ？ flada：（E，T F（f）＝taを NEXT f

50 DATA $19,6,19,8,19,4,10,10,18,5,19,7,19,2,18,9$ $.17 .6,18,3,19,12,18,11,17,10,19,0,18,1,17,9,16,7,1$ 7．2
60 DATA $5 \%, 4,19,14,16,5,15,6,18,13,16,9,17,12,16$ －3，15，4，16．11，15，日，14，5，14，7，15，10，14，9，13，6．13，8．
－70 RESTOAE GO：FOR f＝1 TO 203 READ dd，ta：LET C f）＝da：（ET a（f）非a：NEXT f

B0 DATA 13．23．14，26．14．21，12，21，12，20．15，24，：5，1 8．15．29．12．24．15．27

70 DATA 14．19，13．22，15．20．15．27，15．20．15．22，12．2 $2.12 .25,13.26,23,21,14,24,15,28.15,25,14,27,15,19$, ：5．23．14．25
10C RESTORE 110：FOR $1=1$ TO 10：READ as：LET nE $\%$ ）＝as：NEXT p
110 DATA＂ERQ＂．＂SJE＂．＂TOM＂．＂REN＂．＂JILL＂．＂MARY＂．＂A NDY＂．＂FETE＂．＂DAVE＂．＂MIVE＂
120 LES or $=$ INT（RND 27 ）+10
130 LET Ca＝［MT（RND＊25）＋6
140 LET Ras＝INT（RND＊ 10$\}+1$
160 PRINT AT 6． $6:$＂HAPPY EIRTHDAY＂ 2 ntenas 170 PRINT AT 10.0 ＂＂YOU ARE ABDUT TO RE SHOWN＂：ns
 ASI ED AN OESERVATION QUESTION＂
180 FOR d\＃1 TO 900：NEXT O
190 FOR $1=10$ TO 14：PRINT AT $\mathrm{f}_{\mathrm{a}}$ ：
＂：NEXT 1
200 PLOT 130，40：DRAW 3B．30：DRAW 4B，DS DRAW 30. ミ18：ORAN $-124,0$ ：DRAW $0,-320$ DRAW 424.05 DRAW 0,32 210 PRINT AT 17.21 ：＂HaDDY＂：AT 15,20 ＂B1rtheray＂：AT 19．：2．．ns ins
300 FOR $t=1$ TO OR1 PRINT AT D（ $\%$ ． $\mathrm{O}(\mathrm{f})$ ）PAPER JNT

310 FOR f＝1 10 cas：PRINT AT c（f），a（f）：INF．5：，＂月＂！ THET \＄
320 FOR d＝1 TO gल0：NEXT dt CLS
340 IF RND． 5 THEN GO TO 400

＂HAVEn＂INPUT an
360 IF ar＝or THEN GO TO 500
570 PRINT AT 15，13；＂NO＂zDR：BEEP 2．0：CLS
 T an
450 IF an＝ca THEN GO TO 500
420 PRINT AT 15，14：＂ND＂；Ca：BEEP 1．02 RUN
500 PFINT AT 15，13：＂COFREET＂：FOR $f=30$ TO G0：EEE P＝05，fz NEXT f：RUN
9000 RESTORE $9010:$ FQR $9=U S T R$＂a＂TO USR＂b＂ 7 71 REA Dr：POHE g．r：NEKT g：RETURN
क010 DATA $0.24,24,24,24,24,24,0,24,24,24,255,255,2$ 4.24 .24

## RUVIE



## HISOfe Pascal 4T Amstrad CPC464 [34.95

Amsoft, 169 Kings Rd, Brent wood, Essex

This ampiementation of Pascal is supplied on cassetle and 15 accompanued by a handbook
The book is primarily an insight into the features particular to thus version of the language. Lake most other computer languages there are numerous dialects and the handbook does not set out to teach you the language.
Separately available is the Tutorial Guide to HiSofi Pascal, devoted to teaching this version of Pasca,
Loaded by pressing ctil/ enter, the cassette writes the Pascal as a resident foreground RAM program
From here on all access to the computer is throungh the new language, untul a reset is invoked or the computer is switched off, when BASIC is remstated.

After beng compiled and translated (both options at the press of a key), your complete program can be saved to casselte in machine code.
More exchingly, after returning to the BASIC start-up screen, the machune code program can be loaded with

## One for the Amstrad, to improve the capabilities of you and your micro

ctrl/enter. Yout program 15 then RUN with all the speed and securtey of a professional program!
The Pascal language is decidedly more difficula to master tham BASIC, especially for newcomers to computing Nevertheless, experienced computer lingutsis will find Pascal an excutung and worthwhite gddition, jdeally sulted to a wide tange of applications

Routines are defined as Functions and Procedures that are cither user defined or predefined within the language,
fike READ and WRITE, the masn Input and Outpui Procedures

Heren lies the major strength of Pascal. Think of it as a vast extenston to the BASIC command DEF, and the powerful composition of a Pascal program becomes ipparent
The program is built in blocks, each one able 10 access others which agans can call further blocks. The main control program designates the sequence in whach the othes Functions and Procedures have to be accessed
It follows therefore that

programs have to be designeed from the top down. With the maini conirol part being written first, all the Functions and Procedures can be writien later. This makes for comparatively simple program design.

Accompanyıng the Pascal language program is a Hisofi Tartle Graphics program on the same casselle
The Turtle is loaded using ctr/enter whilst the Pascal program is resident. A shom and ludicrously madequate demonstration program 15 included. Removal of this demo releases space for the example atstungs to be typed into RAM, There is nothing to enthuse about here esther.

With only a few command words to understand and a clear explanation of each in the handbook, writing worthwhile programs is the next step after mastering Pascal.
Incidentaily a hsting of the resident Turile Procedures can be sent to either a the Montor or to a Printer, where all will be revealed. An analysis of the numerous user calls is contamed in The Complete Fitmware Manual (Soft 158).
Experienced programmers looking for another language will find plenty of power in this procy package.
D.H.

| instructors | $90 \%$ |
| :--- | ---: |
| case of use | $100 \%$ |
| value for money | $90 \%$ |



Whell I began pas or uilh nat IEN Sanso bly conpater

 4 hat th of sountid 11 . \& H could be golecaterl
Ithere are three 1148 B thlt
 xumb, BFtP, IAAy and Sot ND The forl iwn are - Mrepermely era: to we, hat the $\overline{(1 /} \mathrm{N})$-tatitient is rather whir, 水t 40 methen 50 that the Hat her of the satho vish istak prostaniming manesa, Ha made st fic in taker th the xe chl cealang with it
It ker ket $m$ the foltawng
 so er 10 expetitient with STA VI) vaten ents Whet tav liase generatea as yosid wu hate thathe 4 mute of the balues dintimed on the wreen lor ant atier on III waur awn progiall

[^1]
## Varighles

The array SM holds the maximum velues which may be input to each registef. You won't have to worry about these in your own programs; you can make SOL ND staiements puting 255 into each register withoul crashing the program, but numbers above the maxima merely repeat the effects of numbers below them
The array SR holds the current values of the 14 PSG registers.

> To mark our 100th birthday, we're pleased to present our first ever MSX program. It's a sound editor by Colin Wilton-Davis, and there's full explanations, too


When you run the program, these start al all zeroes, and stirprise, surprise, no sounds come out. You must stant the ball rolling'
The varsable C is just used as a pornter to the register that is currently being changed.

## Laing the program <br> The sounds produced by the

 MSX machenes come out of your TV sel, so don't forget to turn the volume up above zero (but not too (iar!) before you wonder why nothing is happenusg Before you start the program (or any olher new program) by seying RUN, you should save it on cassette by keyng CSAVE "edson', awilching the recorder 10 'Record' and pressing the ENTER key on the MSX.Now key RUN and press the ENTER key; on the Sanyo MPC-I00 you can just press the F5 key to do this. The screen should display a table of Informanion about the PSG regster contents, but you won't hear anybhtng until you alter some of the regisers.
['Il leave register 7 umifl next to last, otherwose we can look at Ihem in numerical order. The first three parse (0 to 5) control frequencies on the three channels A, B and C - yes, you can produce three-note chords if you like. The second of eath pair gives coarse control of freqtency, the first gives Pline control. Low numbers in these registers give lagh notes, and vice versa

Regisler 6 does the seme thing for the whute noise generator. Registers 81010 control volumes on the three output channels: high numbers give high volumes, With number of 16 giving control of volume to the envelope registers. Registers 11 and 12 are finte and coarse controls for the timing of one 'envelope cycle' with high numbers giving long times (slow). Regrster 13 selects the shape of the 'envelope', which is Just the way the volume vanes with time - see the dagram.

Repister 7 is switching register which controls atl your outpu1s; perhaps strangely, when
 and vice versa. In this program, the imitual state Is vero, so everything is ON. The Least SIgnificant But (Bat 0) controls 1one output 10 channel $A$, so to switch OFF the tone output on channel $A_{1}$ add $I$ to the contents of this register
I'll ieave regster 7 untul next to last, otherwise we can look at them in numerical order, The frrst three pars (0 to 5 ) control frequencies on the three channels

## MSX PROGRAM

A, B and C - yes, you can prodtace three-note chords if you i/ke. The second of each parr gives coarse control of irecuency, the first glves fine control. Low numbers in these registers give high potes, and vace versa

Register 6 does the same thans on the three output charnels, high numbers give high volumes, with a number of 16 giving control of volume to the envelope registers. Regusters 11 and 12 are fine and coarse controls for the timing of one 'envelope cycle' with high mumbers giving long limes (slow), Regrster 13 selecis the shape of the 'envelope', wheth is Just the way the volume varies whth time - see the difagram.

Register 3 in a switchtng register which controls all your outputs: perhaps sirangely, when a it is sel ( 1 ), it switches OFF and vice verst. In this program, the initiat state is zero, so everything IS ON. The Least Significam Bil (By 6) con.ros one jalmat to channel A. so to switch OFF the tone output on channel $A$, add 1 to the content of thls register.



soltod combinatons, incorparate
some of them in a program
which changes pttch for ever
more MSX sounds

more MSX sounds

Next up, Bit I contrals tone out on chamel $B$, and Bat 2 controls tone out on channel $C$. Bits 3 to 5 control white notse putt on chansels A, 8 and C. You can do unteresting things in your programs by settang up different sounds on each channel, then swishunt them on and off undependently wath this fegiter 7. Adding 16 to the register contents swliches off white noise on chanael B ( $(\mathbb{}$ it was on!). To swith off white moise alfogether, set regisiter 7 to 56

Now let's make some nolset. Chane R8 tshort for repister is) to 4 and RI to 4, Restilt is buzzing. Now change R7 to 56, swithang off the white molse, and a life take it's plase Change R7 to 63 and sitences: back to $\$ 6$ and the tone reappeari. Now change R3 102
and R9 io 8 , this supenmposes a louder, higher tone on your exustung lower tone. Yout must be getting the hang of this now, so play around Just a few mnteresting combinhandst to start you off (tumentioned regasters to zter).
RI=1, R7=56, RE=16 $R 12=1$ and R13 if N(sm fits huh R12 ard 13 to fam. litme yourself whth the different envelopes. $\mathrm{R} 6=31, \mathrm{R}^{7}=55$, $R \mathrm{R}=16, \mathrm{R} 12=4$ and $\mathrm{R} 13=8$ guve forem tratn in a hurry now charge R7 to \$3, R9 to 12 and R2 to 200 to make the whistle blow Varying R7 between 55 and $\$ 3$ swatches the whistle on and off wuthoul stoppint the engine hotive Farsimg R12 will muke tive Itall change speed. I'm sure your magginatnon will take yout on from here. Once you have buali
up a hbrary of these simple soltnd combinalton5, incorzorare some of them in a program which changet ptich for even
more MSX sounds.




MSK SOUH Emelope Control (Register 135

| Dota | Emvelope Shape | Dota | Emvelope Strpe |
| :---: | :---: | :---: | :---: |
| 0 to 3 |  | $1!$ | $\sqrt{9}$ |
| 4107 |  | 12 |  |
| 8 | MNMM | 13 | $\Gamma$ |
| 9 |  | 14 | $A \sqrt{V}$ |
| 18 |  | 15 | $A$ |




Today is HCW's burthday, and the Edtor, bless his cotton socks, has purchased some extremely expensive presents for all the office staff. Unfortunately, due to a fit of absentmundedress, he's lost them all. Fearing industral action from the HCW girls he deedes to call m the one man in the universe who could posssbly save the day - Dauntess Dave.

As the game begins you are shown a noor plan of the HCW offices. Somewhere in these oflices the the presents, Using his amazing powers of ESP, Dave pinponts one of the presents and the office in which

## Variabies

I 0 \% mult-purpose counter
M\% multi-purpose counter
$\mathbf{N} \%$ multi-purpose counter
-LAG ${ }^{\text {th }}$ indicates whether ${ }^{\text {a key }}$
has been pressed
G used with GET to sheck for space bar
Now used in conjunction wath TJME to desermine length of tume taken to coliest a present: for awerdras a bones
bame $\%$ used with the offset value ( $30 \%$ ) to tidicate the number of hemss of DATA to be READ
count\% number of corners visted by Dave
char\% counter used when consurvetung a character
torner $\mathrm{X} \%$, cornter $\mathrm{Y}^{\mathrm{w}} \mathrm{H}$ vari ables tinfo which the corner co-ordinites of the present square are READ
col ${ }^{5}$ \% colour in which square is to be filled

It is hadden begins to flash
Moving switily to the office Dave, complete with scissors and sellotape, takes a look in each of the four corners, and then the present miraculously appears

The game is a race aganst tune, and bonuses can be obramed should you find a present soon after the room begins to flath. Tame bonuses are indicated by a loud whistle.
When Dave's tume is up the screen clears and the number of presents collected is displayed Dave is guided around the screen using the following keys: Zleft; X eight; : up and/down

## manX $\operatorname{man}_{\text {man }}$ current co ordinates of man <br> man5, used in FNcheck_pos to find $\begin{gathered}\text { gid } \\ \text { untersections }\end{gathered}$ <br>  ordinates of man, used for mping the old antage <br> present\% пumber of prescats collected <br> squareff that which Indicates whether flashins square its prestent upon the gind <br> 95 temporary stsmig <br> bows hoids the character for the bow <br> mans hotds she character Dave <br> Cotith array used to surnal whether a corner has been visuted by Dave <br> XOM 163 urray used 10 indacate whether an office has been changed into ep pecseth When holding at value of 1 the square st a present <br>  the co-ordinates of the square currently being checked for

 characte(2.0) specifying the number of items of DATA to be READ. Finally it assigns the characters created to their correct vanable names.

## 400 DE 5 PROC define_charac-

 ter( $\mathrm{Z}_{\mathrm{H}}$ ) creates the multicoloured user defined characters using a sting concatenalon technque530 DFF PROCchers contans all the VDU23 character definithons.
130 DEF PROCRrid draws the gnd representing the HCW offices
880 DEF PROCread keybogard is the engune room of the whole program. The keyboard is scanned for any kes depressions. FNchecle pos is then called to check whether Dave is standiag on a horizomal bne, vertical lone, or an intefsection
Finally, dependire upon the results of FNcheck_pos, the character's co-ordmates are incremented in the correct direction. Another important feature of the PROC is the varuable FLAGo\%; if no key has been pressed the value of FLAG\% will be zero. so the program will not bother pronting the character again as he has not been asked to move

1020 De.f PROCprat man when using exclusive $O R$ prining as we are domg in this case, one can erase the old unage of a character by prtming the same character on top of itself. Thes is much less desiructive than using the old wipe string lechnique, where the old image of the characier is erased using a squure character of the same colour as the background.

To use this technique for Dauntless Dave it would be necessary to re-draw the grid each tume the character Dave was moved. This is because the wipe character would erase both Dave and the lunes of the grid over which he was moving

Dave is reprinted at the coordinates manX $\%$, man $Y \%$, These values are then passed to oldman $X \%$ and oldman $Y \%$ for use the next time around.

1100 DFF PROCinit here we dimenston all the arrays to be used, and also set all the varables to their initial values.

1270 DEF FNintect posiman \%\%) is the part which ensures that Dave walks around the walls only and doesn't go tearing across the muddle of an office. To make the calculations easier, the grid around whach he moves is drawn adong co-


ordinates of whole hundreds. eg the vertical lines are drawn at $100,300,500,700,900$ respectively

Dave is therefore only allowed to move vertically if hus man $Y \%$ co-ordinate corresponds to one of these numbers. FWcherk_pos ensures that Dave is stood at a co-ordinate which is a whole hundred, and also that it it an odd whale hundred before allowing him to travel vertically.
The odd whole hundred part is important, otherwise he could walk up the muddle of an office as they are 200 screen coordinales wide
FNeheck-pos 㫙so does this for the horizontal co-ordmates - what a busy little FN it is Should all the condations be fulfilled, the FN returns a value of TRLE and Dave's coordinates are ancremented in the correel direction

1310 DEF PROCselect_square chooses a rundom number between 1 and 16 and checks whether that particular square
has been used before. This is done by examining the array sQ(Nom). If an etement contans a zero, then that particular square has not been used before. Having chosen a blank square, the number of thus square is passed to the PROCsquare_coords.

140 DLF PROCsquare_coords using the value passed from PROCselect square, we RESTORE to the line of the program which conaans the DATA statemens holding the corner co-ordinates of the selected square. These coord nates are held in the arrass corner $X \%$ and corner $Y \%$. only holding the co-ordinates for the office that is flashong two four-element arrays are sufficient. Should we decrde that the co-ordinates would all be READ inio one large artay at the beginning of the program, we would need two 64-element arreys. This represents one huge chunk of memory and may cause the ramuluar NO ROOM messape to appear as the program becomes larget

Finally we call PROCrill square, passing the colour with
whach it is to be filled at the same tume.

1510 DEF PROCTil_square (colma) the matn task of this procedure is to [ill the square selected in the correct foreground colour. The colour varsable col落 performs two tasks in this procedure: it's matr one is determineng the colour of the square, but it also indicates to the PROC whether the square has been changed mio a present or not

If it is called with a colm value of 8 then it is a flashtng black and whate room, if it is called with a tol \% value of anythong else, then the square is fiticed with cyan and a bow 15 printed in the middle.
The flag vanable square\% is reset to zero at this potnt, allowing PROCselect_square to be called from the mam loop, and setting up another flashing biack and white office.

1640 DFF PROCeheck corner compares manX\% and man $Y \%$ aganst each of the corner coordinates of the flashing square. Should Dave's coordinates be idemucal to any of the four corners, then this is registered by placing a value of 1 into the corresponding element of the array Con.
Finally the variable couna $\%$ is incremented by one. When 1his variable reaches four, tach of the four corners will have been visited and we can catl PROCfill_square with a value other than eight.
The TIME al which count\% reaches a value of four is used in confunction with the value of TIME when the square was firsi selected in PROCselect_square (NOW), to ascertan whelher or not you checked all four corners of the flashong square fast enough to be awarded a tume
bonus. Having drawn the present with PROCfill_square we can now inctease our tally of presents by onte.

1370 DFFF PROCbaskground draws a pretty border of Daves around the screen at both the begning and the end of the program,

1870 DEF PROCend having used PROCbackground, we insert the appropriale text and your score

2040 DFF PROCtitle similar to PROCend, but this tume we display the programt anle and a brief explanetoon of the game.

I tried to speed up the execution of the program by replacing many of the vartables by resident intcger vartables. However, the increase in speed was so minimal that I deeided that the more informanve long variable names should stay.

The most tume consuming part of the program is probably the drawing of Dave, as he is a 2 $\times 2$ character consisting of 12 superimposed characters, and requires the manipulation of 47 tems of DATA each tume he is drawn on screen

1 doubt whether the programmers at Acornsoft will be quaking in their boots when they see Dauntless Dave, but I hope the techntques employed may be of some use to you in your future programming ventures

| 14 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| - | FEEME |  |  |  | - |
| $\bigcirc$ | REM* |  |  | ve | - |
| 4* | FEM* |  | by |  | ¢ |
| $E_{20}$ | AEM* |  | Jon Reva= |  | - |
| 60 | REM* |  | 4 O |  | - |
| 76 | REM* | Hape | Cornputang |  | $\cdots$ |

EC REMF


## PACITEET

150 procehars
160 FFGOCharacters
17 PROCtstle
180 PROCgrid

工のG TIME AG
210 REFEAT
220 FFOCr end bevboard
2₹0 IF square\％－b THEN PROCEELect sq．are
24D UNTJL TJME S＝00
259 EOUNDG，1，50，56
260 NOW＝TIME
270 REFEA
SED UNTIL TIME－NOW ？
290 FFDCFAnd
－ENS
＂$\$ 0$
$+3$
130 DEF FROCcharactern
－4b FESTGFE 490
：む6 FRUCdefane＿character（4b）mmonsmes

370 ENDPROt

79
4thit DEF PROCde＋Ine character $\{2 \%\}$
＊10 倳の＂
42륭 トロR N\％＝0 PO 2
4＂${ }^{2}$ READ char\％

4RD NEXT
400 E +1 OF FDDE
470
700



Eac DA AAt $8,3,5,2 J 6, B, 1 日, 3,7,237,239,8,18,3,5,238$
310
4.4
c． 0 DeF Protehar
5．14 VDU $23,224,15,31,24,24,24,12,7,3$
F＊，VDU $23,225,9,9,64,144,144,96,0$ ， 0
，00 VDU $23,220,224,240,46,48,48,78,19,126$

580 VDJ $23,229,0,0,0,+, 1,0,0,0$

क44 V［UU $23,270,0,0,9,128,0,0,0,8$

b， 0 Vou $23,2 \cdots, 6,0,7,5,6, \overrightarrow{2}, 0,6$
© VDU $27,2 t 5,7, b 2,63,14,15,7,0,0$
क4ल VDU ${ }^{\circ 2}, 274,0,0,192,64,192,128$ ，




（H）MOHn
$+10$
730 DEF FAOC．grid
740 に品
758 Muvelab．de

77 MOVE I OR，N\％
－방 DKMW960，M\％
7 Jd NEXT
bum Mole 160， 60
a！ 0 FOK $N \%=160$ TO 960 STEP 工 000

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F4ial $r_{1} \mathrm{x}$

Chab
274
tobe bef fir flvead fevbata




920 IF［NJEYT－67）AND FNCheck powtmanvx，THEN－ 2円x $\%$ many \％




76g IF IA EY\｛－73）AND FNcheck pOS（manry）IMEN ma




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12．4
$\therefore$ DEF FFDuprant man







1st DEF FRiNEInt


$\therefore$ it basen

．＇s or peenky＝a


S CiA ENVELOFE $1,2,127,1, \ldots 1,20,24,104,0, \ldots, 1$ 14
＋F FOR NZ＝I 1016
20．
＋A A HExT
1．－ 0 －$\times 7$ ．．
1．of リ1 $b_{+}$
1．40［ NOF fow
1．50
$++,(5)$
1．＇A DEF FNchect pale（manyl
 manz／2日B）THEN＝TRUE ELSEFFALSF
1290
1 104
1310 DEF FROCEDECt aquare
1520 NOW－TIME
$1=$ FEFEAT


－Notificquare coords M
（）frat it
－ 0





$1^{*}:(\%(1) \%)=\mathbb{R}$
．．．E HEXT

－EndFFur
$+\pi^{T}$

## A CEF FROCfill Equarestol\％

－MOVECORnar $x^{*} \neq(1) \neq 0 \mathrm{~B}, \mathrm{Cornar} Y \%(1)-43$
， $\mathrm{L}, \mathrm{w}$ MOVEcarnar $x \neq(21+55$ ，cornerYz（2）+43




－tF colk 8 THEN MOVECOROE $x \%\{11+105$ ，cornery\％


1ヵ10 EIUDFFOC
10.8
＊＂
tote DEF FPDCcheck＿corner
$16=0$ FOFi $1 \%=1704$
 A1AD C\％（1\％）＝THEN count\％
1 ＂ど地1＂
 $-7 \$ 0.50$ NND $1,1,300,2$
1676 IF count \％＝4 THEN PROCfs 51 ＿gquare（41）ISQ（M\％） fresent i＝freser t＋
IT0 ENDFROC

10
© DEF PROCO wackground
4 Cl 5
$1^{250}$ FOR N\％＝50 TO $12 \% 0$ STEP 150

1） HEXT

」
k 10 F FF $\mathrm{N} \%=5 \mathrm{D}$ TO 1200 STEP 150
AB．is MaVENZ，100tFRINTmans
1月．THENT
， H 7 A E NDFROK
$1+50$
180
－6 $6^{\circ}$ DEF PROLENA


山OD FA10， 19
－$\% 1$ it FHDCBhekground





－ 4 IB FEEEAI
1 FA G＝LET

－（t）mold
－d．O ENUFRJ．
－bin
が
－Widd JEF FFGCtatle
－ $\mathrm{T}^{2+}$, F FROCBackground






Slogger，2ts Beacon Rd． Chalham，Kent

I slogged my way through the hause，collocted tamp，matches． loud，flask，note，key，éragmen of wand and had the game－quest explaticed in the cellar，opened the front door，walked ihrough the deserted village the P＇arkland Crossruad anu nolling．
I conkdn＇t go NE to the Woodland Barrier．I tred NK and ended up in the maye，dead t then rel OADed to restari tha BAsIC ndventure to recover the priceless ewel and the frayments of mmashed magte wand．You haurled cinstes．foestes and desterls in thic 120 loxanons and
answer puzztes and problems tring a vocabulary of 703 words Accompanyzng the cassette afe fourtenn A4 pages of instructions hat are the fullest and eastest to undersfand that I have ever seen 4 simale iutorial exiplains commumication and Play Tes explans muves to follow to complete the lask．Fach of the exght areas is dexinbed in full with clites to answer problems sct，and in mag form
The colourfal scenes are well drawn，motemeni and gacep tance of instructions if speeds and the adzenture is quite tuthe is

piayablity
$8 \%^{\circ}$
hrat！
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## 1mitce：

 Misaideo．a ？ 1 Wi：Hariequan，J11 Shakespeare St Norh Kelvissde，Glasgow G30紋析

I had greal difliculey un loading thas proyram due to the ithordinate amount of lape fluter．I thone thes defelt is confired to the revew copls
The object is to escape from the castle of the evfl Porict Wayvat．You，Jester．must gurde yuluself from left to mith actoss
 hayarus．
fired by the guards，and the guards themselves．There are gaps the battements to be croswed by h．telang a lafi on a thativon
four seve is sthern on sereen


Sidiness， 10 Alstore Rd，Stoul： porl．C＇hesture

Watch ont－the alacha are on the attuck agalth，既d thete are The worsi knd－kammare Jatiens．They descend from the skues in UFOs．to crith into your
iry，uliless you have the akital and refleves to stop them
l＇he screen shows a profile of yout city，plus the current score， 1 hgh suore end statug．The atiens come dows from the lop，the ＂if leer，formaltus and apeed of $\rightarrow$ Hich deprends on wheeh sergen You sise playing and the skall tevel rmplayed Lsing your joyntisk your laver on the at cn craft．A quack flsuk of the fire buaton ar w he will be biasted from the aur， h．Il If $^{\text {veti muss he will erash anto }}$ Yyour cty，The gume ends wher warn of the aliens have peractrated ？your defences．
4．Invailers from ouler space is hhardly the most origental theme． Hhat ts you sill have the apperile fur this shen you＇ll Find it fun Persanally speaking，I＇m rather tured of apping and zappong is Ins hostule marner Surejy there must be semethung mone peacerin
and serene to do？This reeds 14uended BASIC and a joystek

## mstrect aid

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valueformanes
J 4
 MtJ
7.10 H．14：
and there is a bonss vasue which redices as the game proceeds As this bunas is atded on： complenen of a screen，the faster Youl reach the end of the screen the higher your borus
Dorwmentation 25 adequale， and the casurte mfay comams some laadiag instractions Some screen text as mutu－coloured due 10 peor cofour control，and atthough yots have four lives， Whete arc in eflect onty three

This is prohably best suited io Itae younger player as 1 t lackes the Rephislication witch oldet Ravers demand

Thes reeds Extended BAst ลनむ boysाck

piavabal！
trathlues
talue for money
Pror

## Dungeons of



## Guckstlya，Palmerstos Parh

 Hec， 13 Palmersion Ru，Youth amparan SO 1111This is dexcritiod as a rall ume nleractive film－grand nambe for a graphic adventure game Yent gude Norman the warfior through subtmontan saverts 10 Find the Ba stone

The uve of a dix allows much more dar：to be provided thas is posstble wath e easkette zame bul the dramback is the lerpthy delatys white the fithoutetulv slow dis drite chanters awav，Evers erme vou die the first stage of the game has to be relitaded
yot wonder along passages and through toosms，probing wasts ai regular antervals to

## Jiscenver sectet foomss，and arying

 to avoid the gotards，spider like mensters and other hatards towement is contralled bu jovstrek，bus you can use the fanctorn kevs to select fous bifferent mexes．sheld made－ where orsows don＇I inflect larm． arrow mode－ko despanch armaments，fight mode，and rake mode－for picking up objectsin＇s quite chalfengung and atould take． 9 while to comblec． bul doess＇t live up to the exteavagant ciasmi on the fackuptng，This game netels dusc drive
matructions
dayabisis
graphises
value for mones

## Here＇s an assortment for you to browse through．The experts have assessed them all

## Mix cinci wareh

 3 Tikn HyE： B1
 Thath ne code propsatmater，and ${ }^{\dagger}$ affers full mot
debuyging faciluier
Ila utilly works
indows＇which by settig up addreses in ditplayine tie contens and also dequaters al ench mant．There are Tegimers al each phan，Thare are
i wariety of commands enthimen the duet to aster the＇Fith Pernier＇to the varionts wetrdeys to move and aller memory hlocks，and to thice or read indwadal lowationt
d calumale combirathons of onatlon values，and $\#$ complete rexadecimal and ASC＇II dump Facharv．hloss of the fachlatis
 math fe－code telocathon routine thera code to run ht the hex e－stepping whith is moduable provided． Whath is athralualse so in the
nackage is a complese intellogent diasesmbler which cat dis （tar，usb betuecn dita and code
thas has bad pormis，batt it
dors affer a range of verlu
funtrons．Anvente reeditat at atibety of thes hand will be arlikelv to do betle
matrintrank
cuse of tus
display
value for monet


Herty
$3 \times+\quad+2$

## 2X81 PROGRAM



Mad dogs are among the rabid
animals on the rampage in France. Can you survive the journey to
paris in

## Nicholas Rust's original game?

Thus game is baved on a norel He:口 yen. find burnetil in toulouse. in the woll of France, and som max ltarthes north to reach Purly Yot have one sely big prow cim mian of he ammats hal you mety in the comatrsside are inleted with the oh er ciseder, rature
y Jit late ne uat of xnowing whal an mide an durngerous or
 toke riaht At the vart of tile Whate bou fare (we vila nes whey sand ter only one
 the atrereat anas to be uved an dire efrerict wey
Lo ecath Paris vour mats

 madee the trip monetr and more twk
Whert you theet ars an ma bim have three nowsons You tall run - but must of the ari mith ate lavier thatn volu tou can vace nale yourserf bull (1) onty lisets for one direntufter $\$ 30$ sath forl the
 miss bou wa thate to make


## How it works

10-200 set up artays
210 -340 set up screen display 10v0-1020 routine for morih road selection

1200.1230 routime for south poad selectorn
1400-1440 routine for fermyard selection
160h-1650 pobline for meadow selection
1800-1850
routine for wood selectron
2000-2050 routine for rwerbark relection
2500-2540 routure for linding bonus equipment
2600.2630 rousise for stse of vaccine
2700-2730 routine for lirtn shas $3000-3070$ routine for player running
3300-3340 routane 10 tell player when no vaceine or builens $4000-4090$ routire to show postion
SOIV-S045
rourime for player becoming fathd
60N0-6030 routine for reaching Paris
$7000-7120$ rountine for instruc isoms on meeing animal s000-8ikn play again? 9100-01s0 est player's name $9200-9250$ vartables

## tariables

L. roads progressed from stan

N FOR-NEXT loops
As dimensioned saring contaithing destinations
ES dimensioned striag contanIng bonus ansirtictiontis
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# Apple Pie BEC $B$ E6．95 

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The setting for this colouthal Mode 2 arcade game by Vistons is a stmall mid－western American lowne in reatay e grid of coloured squares throage wheh a varicly of alicta swarm． attempting the rather amprohable task of stexing the siars from the towns flag

Your job is to control a blue Battle tank driving round the yrid shooling the aliens effore your supply of stars ruas out The flag itself is at the botiom， and each alsen totechume is removes one star．Remainang stars at the end of euch wave give a bentur and there is an
addtional borms for shooting the five lenered dronds th the correct sequeme．Other nasties include Homers，which foliow you round，Scythes and Packers， Tanks when shoot back arnd Zagres which can only be shot broadsude on

Control of the tank is keyboard only，bul the controls are farly smooth and responsive The graphuss are taultess and fast，but the sank＂s manouvre． ability is lamted and a reverse button would be useral．Never－ thelems Apple Pie is a larls original and playable game，and I recommend it urteservedt，
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You enter the company is ： decetww，but you have al cover rait th the busmexs whsth you fintst mathiar by not makung too many mistakes in vout worl each山ss

Gy keepme your wots about you \＆f you read the memos that require rephen，you shoald find a certain person requesiling inionmation that en no streily in hus area of responsibilisy

This is your mole and as somb at yout are sure you report to the turectors and the company is yecure agan
There are seven differcat roles for you to take and you learn a ereat deal abaut on as you play thls game．The conslant rewand－ ing of the cassette is a pain，you need to do this afeer each pari of the game．in order to go ons to the next pari
Interesing but nat 枵 entital Ing as I had expected，overpriced 100
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## Loco samation nuciebertron ع6．95

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All abourt！！II＇t time to get up sten ni，pirl your Caney Jones huI㙁，widd hesul ent mio the witd west as the tever of the thinantide express．
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brtage patsia，me，best ol all，gold Ponats are hwarded for deliverime these gold trucks to the bank． dutumby you can find the bamk In the second lype of game you －are the the halty of a ruriawas Ftran leuring through the wild 1．West at fiull speed．Whtotsunately fin，chas verston of the game soon vibocame a litile iedious as all yous coilrolled was the putnts atyer Uverall I minoyed the proyrati， I was an oppoftunty to plays tuce sedale same for a charge， with nid a faser in mpht

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## value for mones

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## Doctor who ond the Neinlore 520 ETE 87．805

## IIIC 35 Maryicbone Hugh S 1

 I ondon WIM 4AAIt wis whth apprehension that I emamined thus lasest offeripa is the Doctor Who suga，I reancmber the first Doctor Wha advemares in which second rule arcade games were pachaged alta sold ass an adventires．This new program is a real adventure，and a steable one．It occupies both sider of the cassette．each half on the game being the sume length ${ }^{9}$ s The Hoblut
At the slart vou and the （Doctor lltempt to help King traranger，however，you become sepsraled from the Dostor and must safty on alone F fom hetre on the slory lends to berome a， hate gary．Withan the first it manutes If had dred a housand rertible dealhs．Once I had both my arms and legt brohen and wins left to de I thank \＆would have prefered it if the BBC had sruck to good clitan zappong and plastang
A compreheasive vocabulars can be employed Sentences such ats＂Give the scrall：to the Doctor＂ are allowed．It is this Jextbinty of langtage combined with complex plot that wre the sirenglhas of the atventurc．J．R．
thatrucatons
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## Pantry Antics BBC E6．95

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## －Harvey，Nunemian

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I would hike to see more Eviended BASIC programs in your magarine－which don＇1 require joysticks as we don＇I all have this small novelty－and more soft＋ wate res ewn lor the Texils Why not toy revewing the It ins new tartradyes relest edf by Iexils loubrument
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The $\Pi$ speech swntheswer sthe best thave ever heard．

Howr many home compus－ ers do yous know which can sting or read out thetr own
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1ugether will alar Frew，one of our kecal TL wlyards，I formed the Dlaltby 丁I users club． Alitherygh I liste had whise detiall publ vand an bins Letiters page．If fect your readers might like to know that thers bace beto at fer
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 firul half bal the computer
 pleses athe in the ofthet malch the computer stored －last five－minute goal
I think Match Day is great Yoli can see the players run on to the field So，how have other readers Sone
done

Andrew Musprove，Ipswich


Your proudly published Gallup sofiware charl of Decembet 31 is，we are told， ＇the one to behieve int＇，

What isn＇1 clear is the emerplatned lisu of enght columns showing vanous niteray If this is like poputanly chart 1 find 11 tamon be betieted as il doesin＇t correspond with （allup＇s own publthed charts．

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Mithael A）land，（iloucester

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# BMX <br> Number Jump $C 54$ 

Longman Soltware，Longman Hie，\＃urnt M II，Hartow，Essex CM20 2JE

This is an educational program atmed at gtving the six－to ter－ yearnold age grouph experience Whtls the basic number skilks． 10 altract the attenlion of thes age group Longman have used the cursent fad of ButX as then focal joznt．The chuld chootes a difficulty level and the same cuttilameres

He mist ride bas bike around \＃mare－like course evoiding mulant kanmarons which wast to push hith off．Al the atse of the stereen is a sum whase answer is displinyed an one of the galts in the mate，The boke rider has to be manouevred over the cortect answer gute at wiacth point the
knngatroo disappears，ate new and kangaroo appear and the game contmues．The skills tested in this program are addition． subtraction，multiplication and dissmon

The ideas behud thos game are sound and in terms of sereen presentaton it is good．Ifound that I didn＇t have the instantan－ edus control of the bike I would have liked．Coasequently the game gave a hugh falure rate－ nas desurable in an edaralumat game．Fankure，for because of a wrong answer，bua by reason of slugyish conirols，may mesuli in the game bexg left on the ghell

M．W．
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ease of use
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# Tugatine Bibliography日er 8 E10 per port 

McHugh Enierpmses， 43 Hook slosk Qval，Harmogate，$N$ Yorks HC 28 OF

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The biblography was staried in Becember［98！and lass been acpi up to date．Each program has aboult thousind referefices and wn be seatched in munules． If you have more than ane part
on a disce，it will load that section and carry on the search

What disappontted the was 1hal the programs don＇t use randon atcess，each reference is comalace in a DATA slatement and il is thess that are searshed
Having satd that the programs are very useful and cath save hours of work the iwo string seasch facility is good and this enables you 10 find only graphic artucies in one magrazue which can make life much more simple．

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    Line 230 generates the resulting sound
    lines 260 to 360 accept keyboard input to allow you to repeat the sound of change the conients of any fegister and thuls alier the sound

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